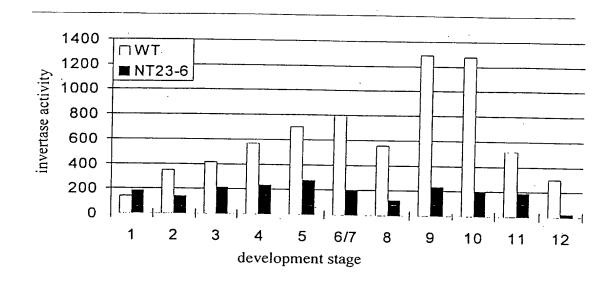


5 7 9 11

development stage

Invertase activity in tobacco pollen Fig. 1C



The extracellular invertase NIN88 of tobacco pollen is specifically expressed in the anthers

Signos Si

Fig. 2



Fig. 3A

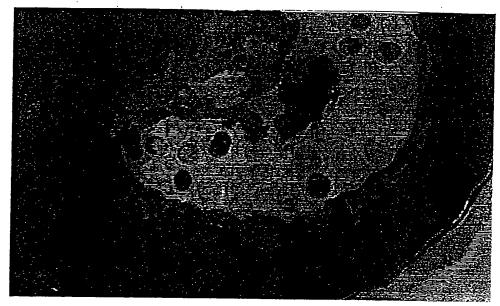


Fig. 3B



Fig. 3C

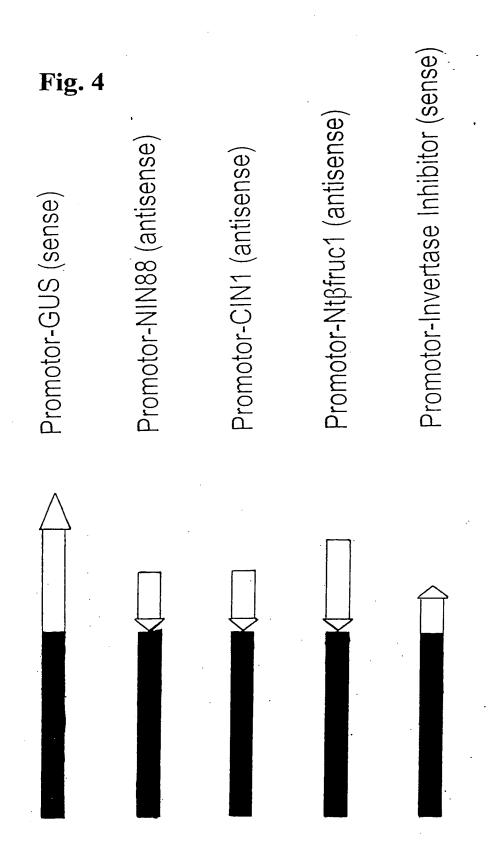


Fig. 5A

6/22

Promoter DNA sequence of the extracellular invertase NIN88 from tobacco

| TCTAGAARGA CGCCACGGC CAGGACGGG AGTATGATTT CCCCGATACTA TOTTOTACCTC GAGTITTAA AACCTGTTAG CGTGATGACG CGCGATACTA TOTTOTACCTC CAGTITTAA AACCTGTTAG CGTGATGACG CGCGATACTA TOTTOTACCTC CATCGTCAC CATAGTAGG CTCGAGGATG TCGTAAAGTG ATAACGAGGG CATCATAGG AGGAAAACC AACCGTGGT TATCTGACTT ATCGAAGAGT ATACTTTCTT TAGTATTATCACT TATCTGACTT ATCGAAGAGT ATACTTCTT GGGGGAACC TATCTGACTT ACCGAGGAT ATACTGAAGTACACTTCTT TATCTGACTT ACCGAGGAT ATACTGAAGTACACCCCCCGAGGATA AATGTAAAGTACACCCCCCCGAGGATA AATGTAAAACCGTGT TATCTGACGTT ACCGTCACCCCCGAGGATA AATGTAAAACCGTGT TATCTGACGTT CTCGGCGCC CCCCGAGTATA AATGTAAAACCGTGTC TATCTGACTT CTCGGCGCC CCCCGAGTATA AATGTAAAACCGTGTC CTCGAGAAAACCCTACACACAAAAATATT TACGAGTGACCCCCCCCCC | 1 | TOTAL A ATTOR | CCCCACCCC | CACCACCCCC | NOMEN MOST MANUEL | CCCCCA A MCM |
|--|---------|---------------|-----------------|----------------|-------------------|---------------|
| 101 TCTTATCCTC 151 GGCCATCTC 201 TCGTAAAGG 201 TCGTAAAGGG 201 TCGCTCACA 201 TCGACACA 201 TCGACACA 201 TCGCTCACA 201 TCGACACA 201 TCGACACAC 201 TCCACACACACACACACACACACACACACACACACACAC | 1 51 | TCTAGAATGA | CGCCACCGGC | A B CCTCTTTA C | AGTATGATTT | CCCCCMACMA |
| 191 GGGCCACTCC CATAGGGCCAC CATAMAGGG CATAMATGGG CATACTG TATCTARTA 251 TATCTGACTT ATACTGACGGC ATACGGGG CATAMATGGAGGAAAACC AAACCGTTCA 351 GAGCGAAACC ACCGGTTCA 351 GATCGAAAGG CCCCCGATGAT AMACTGGCGTAC 401 GTAAGGGTGG TTCGGCGGCACT TTAGGTCCTC TTCGGCGGCACT TTAGGTCCTC TTCGGCGGCACT TTCGGCGGACT TTAGGTCCTC TTCGGCGGCACT TTCGGCGGACT TTCGGCGCACC TTTCGGCGGCACT TTCGGCGCACC TTTCGGCGGCACT TTCGGCGCACC TTTCGGCGGCACC TTCGGCTCTG TTCGGCGGCACC TTCGGCTCTG TTCGGCGGCACC TTCGGCTCTG TTCGGCGGCACC TTCGGCTCTG TTCGGCGCACC TCTTTTGTGC CCCCCTCTTGC TTCGGCGGACC TCTTTTGTGC CCCCCTCTTGC TTCGGCGGACC TCTTTTGTGC CCCCCTCTTGC TTCGGCGGACC TCTTTTGTGC CCACTTTACT TTTGGCCCCC TCTTTTTGTGC CCACTTTACT TTTGGTCCTCC TTTGGCGGGA TCCACTTTACT TTTGGTCCCCC TCGGTTAGC TCCACTTTACT TTTGGTCCCCC TCTTTTTGTGC CCACTTTACT TTTGGTCCCC TCTTTTTGTGC CCACTTTACT TTTGGTCCCCC TCTTTTGTGC TCCGGTTAG TTCGGCGCACC TCACTTTGCG TTCGGCGCACC TCACTTGCGC TCCGGTTAG TTCGGCGCACC TCACGGCCCCCC TCACGGTCGGACCC TCACGGCCCCCCC TCACGGCCCCCCC TCACGGCCCCCCC TCCCGGTTAG TTCGCCCCCC TCCGGTTAG TCCACCCCCC TCCGGTTAG TCCACCCCCCC TCCGGTTAG TCCACCCCCC TCCGGTTAG TCCACCCCCC TCCGGTTAG TCCACCCCCC TCCGGTTAG TCCACCCCCC TCCGGTTAG TCCACCCCCC TCCACGTTCTC TCCGGTTAG TCCACCCCCC TCCACGTTCTC TCCGGTTAG TCCACCCCCC TCCACGTTCCT TCCGGTTAG TCCACCCCCC TCCACGTTCCT TCCGGTTAG TCCACCCCCC TCCACGTTCCT TCCGGTTAG TCCACCCCCC TCCACGCCC TCCCCCCC TCCCCCCC TCCCCCCC TCCCCCCC TCCCCCC | _ | TCG11CAAC1 | CALIGITAN | AUCCIGITAG | CTCCACCAGC | CACAAMMCAC |
| 201 TICGTAAAGGG CATCATAGGG CATCATAGGG CAACACGTGGT 251 TATCGAGGTATA 301 TGAGGGATTA 301 TGAGGGGGT 301 TGAGATTGC 301 TGAGATTGC 301 TGAGTGGGGGT 301 TGAGAGGGAT 301 TGAGAGGAT 301 TGAGAGGGAT 301 TGAGAGGGAT 301 TGAGAGGGAT 301 TGAGAGGAT 301 TCAGAGGAT | | CCCCCACTCC | CAGILICALI | CATAATCCCT | CICGAGGAIG | CACAATTCAC |
| 251 TARCTGACTT ACGARGATG ATACTTTCTT TAAGTTTCTC GTACCGTTCA 301 GAGGGARACG TCGCTCTCGCCC CCCCGATGAT AATGTGAATG GTCGAGGACC 401 GTAAGGGTGG TTCGCCGCC CCCCGATGAT AATGTGAATG GTCCGAGCACC 401 GTAAGGGTGG TTCGCCGCC CCCCGATGAT AATGTGAATG GTCCGAGCACC 401 GTAAGGGTGG TTCGCCGCC CCCCGATGAT TTGAGGTGTC TCGAGAAAAC 501 CATGTCCATG ACCTCTTGTCC TTCGGCGGAT ACAATCCTCA GTTTTGTGAG 501 CATGTCCATG ACCTCTTGTCC TAGGGGGAT ACAATCCTCA GTTTTGTGAG 601 TCGACCTCA TCTTTTGTGG CAGAGGGCAT TCGATTTTCT AGTGGTTGAG 601 TCGACACCAC ACTTTTACT TTTGGTCCG GCTTTCTAA 601 TCGACCACCA ACATCTCA TTTGGTCGA GCGATTGTA 701 AAGAGGGCAT ACTCCTCTGG TCCGGTGAG TCCCTGTCCT TGGCCTAGA 701 AAGAGGGCAT ACCTCTCTGG TCCGGTGAG TCCCTGTCCT TGGCCTAGA 701 AAGAGGGCAT ACCTCTCTGG TCCGGTGAG TCCCTGTCCT TGGCCTAGA 701 GGCCCCTCTT TGTAGGG TGACCACCA AAATTTCTGA GCGGATAGTA 702 GGCCCCCTCT TGACCACCGA AAATTTCATT TGACCTAGATGC 801 TTGGTCCATT TCTCGGTTAG TCCGGTGAG TCCCTGTCCT TGGCCTAGA 801 TTGGTCCATT TCACCGGCA GAGGGCATTG ATGGCACTTT TGACATAGC 801 TTGGCCCAT TCACCGCGA GAGGGCATTG ATGGCACCTT TGACCATGAG 801 GTTGGTCATT TCACCCAGG TCCTGGGCC TGACCAGGCCTCAG CACAGTTGGC 951 GTTGGTCATT TCACCCAG TCCTGCGCC TGCAGGCCTCAG CACAGTTGGC 951 GTTGGTCATA TCATCCCAG TCCTGCGCC TGCAGGCCTCAG CACAGTTGGC 951 GTTGGTCAAA TCATCCTTC TGTTAGAGG ATATTTCATA AGTTGGTTTA 1001 ACAGTTTTCA GCCACACACTCC TCCCCAGGG ATTCTTCACT 1101 GTGAATCGA CCATTCCTTC TGATACATTC GGTAAGGTCA TCCTTACTCT 1101 GCCAATAAAT ACCGTTCACC CACCATCTCTCCG GATTTTTACC 1201 GCCATTATAA ACTCGTTCACC CATCCTCTCC GGTTTTTACC 1201 GCCATTATAA ACTCGTTCACC CATCCTCTCC GGTTTTTACC 1201 ACATTTTCAA AACATCTTC TCACCATTCTTC TCTTCCCTCA 1201 ACATTTTCAA AACATCAAA TCTTCTTCC CATCCACATCG 1201 ACATTTTCAA AACATCATAA GTTACATGT TCTTCGGCAA TCCTTCCCCAA 1201 TCTTTCCCC TATCACATTTACT GACGCACCACACCAC | | TOOTA A ACTO | TATEGICCAC | CATAAIGCGI | ACCCANANCC | AAACCCTCCT |
| 361 GARTGARTA ACTGITTGAG CTTGTGGGT GTGGGGARCT TRGGTGGTG 461 CTARGGGTG TTTCGCGCC CCCGATGAT ARTGINART GTGGAGARAG 451 TIGGTCCTTC TTCGGCACA CACANTAIT TTGAGGTGTC CTGGARAAG 451 TIGGTCCTTG TTCGGCACA CACANTAIT TTGAGGTGTC CTGGARAGA 451 TIGGTCCTTG TTGGGCACA CACANTAIT TTGAGGTGTC CTGGARAGA 451 TIGGTCCTTG TTGGGCACA CACANTAIT TTGAGGTGTC CTTGATGAG 451 TCGGCCCTTG TTGGAGACACA CACANTAIT TTGAGGTGTC CTTGATGAGA 451 TCGGCCCTTG TTGGAGACACA CACANTAIT TTTGGTCCCG GCTTCTTGAGC 461 TCGACCTCA TCTTTTGTGG CACAGGGCAT CTGATTTTCT AGGGCAGGGTGATAGA 461 TGAGACCACA ACTTTCTGGGCAG GCTCTTCAA 461 TGAGCCCAC ACTTTCTGGGCAG GTGACACACA AAATTTGGAG 461 TGAGCCCACT TCGTAGAGGAG GAGGGGCATG ACCCCTGTCC TGGCCTAGAT 461 TGAGCCCACT TCGTAGAGGAG GAGGGGCATG ATGCCACTTC TGGCCTAGAT 461 TGAGCCCACT TCAGGTCGTG TTCCGGTGAG TCCCTGTGCT TGGCCTAGAT 461 TGAGCCCACT TCAGGTCGTG TTCCGGTGAG TCCCAGGTC TACCCAGGGG 461 TTGACCCACA TCAGGTCGTC TGGCCCAC GCGCCTCAG CACAGTAGGA 461 TTGACCACAT TCAGGTCGTC TGGCCCAC GCGCCTCAG CACAGTAGGA 461 TTGACCACAC TCAGGTCGTC TGGCCCAC GCGCCTCAG CACAGTAGGA 461 TTGACCACAC TCAGGTCCTC GAGCCATTCA TGTTCAGCCC ATTCGGCAT 461 TTGCGCCAAA TCATTCCCACAG TGGTTGAGAG ATATTTCATA ACTTGGCTATA 461 TGGCAAATATA ATCGTTCCAC CTTCCCTCC GATTCATACA 461 TGGCAAATATA ACTTTCCACA CACATAGGA CACATAGGA 461 TTTACCCACAG TCAGAGAGAGT CCCTCAATCC CTCCCACATGC 461 TTTACCCACAG TCAGATAGAG CACATGCCC CTCCCGACATGG 461 TTTACCCACAG TCAGATAGAG CACATGCCC CTCCCGACATGG 461 TTTACCCACAG TCAGATAGAG TCATTCTTCG AATATTTCAC CCCACATGG 461 TTTACCCACAG TCAGATAGAG TCATTCTTCG AATATTTCAC CCCACATGG 461 TTTACCCACAG TCAGATAAGG TGCACCCCGAA TCATTCCCCGA 461 TTTTCTGAAA ATTTTTTTGGG CACCCCGTA TTTTACCGCC GACCCATGC 461 TCATAAAATT TCAGATAAGG TGCACCCGGA TTTTTACCGCC TCATTCTCTG TATTCAGCCG TCATTCTTCG TCTTTCAGAGG TCTCCCCGA 461 TTTTCTGAAA ATTTTTTTGGG CACCCCGTA TTTTTACCGAC TTTTTCTTCTG 461 TCATAAAATT TCAGATAAGG TCACCCCGACATT TTTTTCTTGAC 461 TCTTTCCCC TACCGGATA TACCTCTCC TCAGGGGGGG TCCAA 461 TCTTTCTCCC TACCGGATA TACCTCTC TCAGAGGAGGAG TTTTCTTCTTG 461 TCTTTCAGAGA TACCTTTCAT TGAGCGGTTA TCCTTCTTCTG TTTTTTTTTT | | TOTAMOTO | TARCORDOR STATE | TONTACTO ATA | TA A COUNTY OFF | Cary CCCaracy |
| 401 GATCGARACG TCCTCTCCCC CCCCGATCAT AATGRAATG GTGGGATCCA 451 TYGSTCCTTC TCCGCGGGT CCCTGGTCTT GTTCAGGTCC TCCGARAAA 551 CATGTCCATG TCCGCTCACA CAACAATATT TGAGGTCTC CTCGARAAA 551 CATGTCCATG TCCGCTCTTC TGAGGACTCC CAGAGGCCAT CTTTTTTGTGAC 651 TCTGACCTCA TCTTTTGTGG CAGAGGCCAT TTTGGTCCCA GCTTTTTCTGAGG 651 TCCATAGACT TCTTTTGTGG CAGAGGCCAT TTTGGTCCCA GCTTCTTCA 651 TCCATAGACT TCTTTTGTGG CAGACACACA AAATTTGTCA GCGGATAGTA 751 GGGCCCTCTT TGAGG GTGACACACA AAATTGTCA GCGGATAGTA 751 GGGCCCTCTT TGAGGGGGA GAGGGCATG ATGCCATGTCA TTTGGTCCGA 801 TTGATCCATT TCTCGGTTAG TCCGGTGAG TCCCTGTCCT TGGCCTAGAT 751 GGGCCCCTCT TGAGAGGGGA GAGGGCATG ATGCCACACAA 851 CATTTTGACG TCCGGTGAG TCCCTGTCCT TGGCCTAGAT 851 CATTTTGACG TCCGGTGAG TCCCTGCCT TTCGCATGA 851 CATTTTGACG TCCGGTCAG TCCGGGAG TGCAAGATCT CTCTTGGCAT 851 GTTGGCCCAT TCAGGTCCT TCCGCGAG TGCAAGATCT CTCTTGGCAT 851 GTTGGTATAT TCATCCCAG TGTTGAGG ATATTTCATA AGTTGGTTTA 851 GTTGGTAATA TCATCCCAAG TGGTTGAGG ATATTTCATA AGTTGGTTTA 851 GTTGGAATAA TCCGTCCAC TGCCCATTCA TGTTCAGCCA 951 GTTGGAATCA CAATTCCTTC TGATACATT CGTACAGAG ATATTCATA 851 GTTGGAATAA TCCGTCCAC TGCCCACACAGG ATATTCATA 851 CATTTTTACCAAG TCAATACCACA CACAGTTGCA 851 GGCAAATAT ATCGTTCACT TGCCTCCC GGTTTTTAAC CCAACATGG 851 GGCAACTGT AAATACCAAG TCAATACCACA GATCGTTTGA 851 CATTTTCAAAATAT ATCGTTCACT TTGCCTCCC GGTTTTTAAC CCAACATGG 861 AAATACCAAG TCAATACCAAG TCAATACCACA GATCGTTTGA 861 ACATTTTCAA ACATTCACA TTTCAACCACA TCCTCACCACA 862 CACAGTTTAA ACTCTTCTC TTTTGAGAGA ATATTTCAA TGCAACCACA 863 TCAATACCACA TCCTCACCAC TCCCGCAACATGCA 863 ACAATACCAAG TCAATACCACA TCCTCCCCCA 863 ATATTTCACACAA TATTTCAAA TATCCTTCAC TTTCACCCC 864 TATGCCCCAC TCCCCACATACA TCCTTCCCCCA 865 TTTACCCCACA TCCACACATGCA TCCCCCACACATGCA 866 TCCTCACCACATACT TCCACCACATCCA TCCACCACATGCA 867 TTTTCACCACA TATCACATATA TTTTCACACAC TCCACCACATGCA 866 TCCTTCCTCTC TCCACACACACCACACCCCCCCCCC | | | | | | |
| 401 GTRAGGGGG TTTCGCGGT CCTGGTGTT GTTCACGTCC TCGGARANGE 501 CATGTCCATG ECCTCTTGTC TTAGGGGGAT CACACATATT TTAGGGGTGTC CTTGATGAGAG 501 CATGTCCATG ECCTCTTGTC TTAGGGCGAT ACAATATT TTAGGGGTGTC 501 CTCGCCTCTA ETGGARACTCG CAGAGGGCAT CTGATTTTCT AGTGTCGCAG 601 TCTGACCTCA ETTTTGTGG CACACATATT TTTTGGTCCAG GCTTCTTCAA 601 TCCATAGACT ACTTTTGTGG CACACATATTTTTTTTGTGTCCAG GCTTCTTCAA 601 TCCATAGACT ACTTCTTGTGG CACACATATTTTTTTGTGTCCAG GCTTCTTCAA 601 TCATAGACT ACTTCTTGTGG CACACATATTTTTTGTGTCCAG GCTCTTCAA 601 TTGACCACAT ACCTCTCTG TTCGGTGAG TCCCTGTCCT TGGCCTAGAT 601 TTGATCCATT ECTAGGGGA GAGGGGCATG ACACACATATGA 801 TTGATCCATT ECTAGGTTAG ATAGGAGC TGCAGACTCT TGACATATGG 801 TTGACCCCAT TCAGGGGA GAGGGGCATG ATGCCAGACTC CACACATAGG 801 TTGACCCCAT TCAGGTCGT GTACCAGAGT CAATCGAGA 801 TTGACCCCAT TCAGGTCGT GTACCAGAGT CAATCGAGA 801 TTGACCCCAA TCAGGTCGT TCGTCGGCA GGGCCCTCAG CACAGTAGGC 901 GTTGGCCCCAT TCAGGTCGCA GGGCCCTCAG CACAGTAGGC 901 GTTGGCTACAA CCATTCCTC GATCATTCA GTTCAGCCC ATTCTTGACA 801 TGGCAAAATA TCAGTCACT CTCTCGCCA GGGCCCTCAG CACACTAGGC 101 GTGAAATAT ACCGTTCACT CTCTCCTCAGCT GATCATTCAG 102 GCCATTATGA ECCTTCTC GAGCCATTCA TGTTCAGCC ATTCTTCAG 103 ACATTTTCAA EACATGCAC CCTCAATCC CCCAACATGC 104 TCATAAATTT TCAGATAAGA TCATCCCT CTCTCGAGT GATTGTTTAG 105 GCCATTATGA EACTGTCACT CTCTCCCGACT GATTGTTTAG 106 CACATTTTCAA EACAGAGAGA TCAATCCC CCCAACATGC 105 TTTACCCCAA TACCACAG TGACATAAGA TCAATCCCC CAACATGC 105 TTTACCCCAA TACCACAG TACCACACAGA TCATTCCCCAA 106 TCATAAATTT TCAGATAAGA TATTTTTGGG GACCTTCT TTTTGAGAGA ATCATTCCC 107 TACCACAAA TATTTTTGGG GACCATTTA TTTTACCTCC ACTATACCAC CCCAACATGC 107 TTTTGGAAA TATTTTTTGG GCACCTTTTA TTTTACCACC TTTTTTTTTT | | | | | | |
| 451 TIGGTCCTIC CICGGTCACA CARCANTATT TIGGGGGTC CITGATGANGA 551 CONGCICTIG CICGGACTICG CAGAGGCCAT CIGATTTICT AGTGCTICGA 551 TIGCATCACT CITTITGTGG CAGAGGCCAT CIGATTTICT AGTGCTTICAC 551 TIGCATAGACT CITTITGTGG CAGAGGCCAT CIGATTTICT AGTGCTTICAC 551 TIGCATAGACT CITTITGTGG CAGAGGCCAT CAGATTTICAT TIGGCTTACAC 751 GGGCCCTCTT CIGAGGGGGA GAGGGCATG AGGCCATTTACT TIGGCTTAGACT 751 GGCCCCATT CIGAGGGA GAGGGCATG ATGGCCACTTT TIGGCATAATGG 801 TIGATCCATT CITCGGTTAG ATCATGGGCA TIGAGGACTT TIGACGAGGG 801 TIGATCCATT CAGGTCAG ATCATGGGCA TIGACGAGGC CAATCAGTAGA 801 CATTITGAGC CACTCCCAG TICAGGCA TICAGGCCA TICAGGAGGC CAATCAGTAGA 901 GTTGGCCCAT TICAGGTCGT TICGGCTC GAGCCATTCA CACCAGTAGGC 901 GTTGGCCCAT TICAGCTCAG TICGTCGCA CACCAGTAGGC CAATCAGTAGA 901 CACCATTATCA CACTCCCAG TICGCCCC GAGCCATTCA TICTCAGATA 1001 ACAGTITICAC CICATTCCTC GATACATTC GGTAAGGTCA ATCCTTGGAAA 1001 ACAGTITICAC CICATTCCCTC GAGCCATTCA TICTCAGCCC ATTCTTGGAAA 1001 ACAGTITICAC CICATTCCCC CICCAATCC CTCCCCAGC GATCCTTTGGAAA 1001 ACACTTTTCAA CACTTCCCC CICCAATCC CTCCCCAGC GATCCTTTGGAAA 1001 ACACTTTTCAA CACTTCCCC CICCAATCC CTCCCCGACT GATCTTTGGAAA 1001 ACACTTTTCAA CACTCCCCA GACCATTCA TICTCAGGGCC CACCACTTGGAAAAAAAAAAAAAAAAAAAA | | | | | | |
| 551 CATGETCARG 551 TCCGCTCTTG 5TGGACACTG 6COLORITO 5TGGACCTC 5TGGACCTCA 6COLORITO 5TGGACCTCA 6COLORITO 5TGGACCTCA 6COLORITO 5TGGACCTCA 6COLORITO 6 | | | | | | |
| 551 CTCGCTCTIG STGGARCTIC CAGAGGGCAT CTGATTTCTA AGTGCTTGGA- 651 TCCAACACA SCTTTTTGTGG CCACTTACT TTTGGTCCA GCTTCTTCA- 651 TCCAACACA SATTTGTGA GCTCCTTCA- 701 AAGAGGGCAT SCTTTTGTGGG GTGACACA AAATTTGTGA GCGGATAGTA 751 AGGGCCCTCTT SGTCGGGGA GTCCCTTCCT TGGCCTAGAT 751 AGGCCCCCTT SGTCGGGGA TCCCTTCCT TGGCATAGAC 801 TTGATCCATT TCTCGGTTAG STCAGGGCAT TGGACACACA CAAATTTGTGA CACATTAGA 851 CATTTTGAG STCAGGGGCATG TGCACACACA CAAATTGTGG 861 CTGTGTGATT TCTCGGTTAG STCAGGAGCCATTC TGACCAGGGT CAACGATGGA 961 GTTGGCCCAT TCAGGCGCA CGGCCCTCA CACAGTAGGC 951 GTTGTGTATT TCATCCCAG TGGTTGGAG ATATTTCATA AGTTGGTTAG 1001 ACAGTTTTCT SGTCGCCCC GAGCCATTCA TGTTCAGCC ATCCTGGAA 1051 GTTGGAATAGA CCATTCCTTC TGATACATTC GTTAAGGCC ATCCTTAGTGA 1151 TGCCAAATAT STCGTTCAGC CCTCAATCC CTCCCGAGT ATCTTTGGAA 1151 TGCCAAATAT STCGTTCACC CCTCAATCC CTCCCGAGT ATCTTTTGTA 1251 GGGCAGCTGT GAATACCAAG TCATTCTTC CTTTCAGAGA ATCATTTCAA 1251 GGGCAGCTGT GAATACCAAG TCATTCTTC TTTTAGCCCCA TCCCTTAGCCC 1301 ACATTTTCAA CAAGATAGAG GAACTTTGT CTTTGGAGAG ATCATTGCCCA 1401 TTTTACCCGCA TGACATAATA STTACATAGAT CTTTGGAGAG ATCATTGCCCA 1401 TCATAAAATT TCAGATAAGA TCAATGCCT CTCCGGTAAGG TCCTCTCCCGA 1401 TCATAAAATT TCAGACTAATA STTACATGAT CTTTGGAGGA ATCATTGCCC 1501 TTTTTTGGAA TATTTTTTGG GCACCCGGTA TTTTTATCGAC CCACCGCTC 1501 TTTTTTGCAAA TATTTTTTGG GCACCCGGTA TTTTTATCGAC CCACCGCTC 1501 TTTTTTGCAAA TATTTTTTGG GCACCCCGGTA TTTTTATCGAC TCTTCTTCTG 1501 TTTTTTGCAAA TATTTTTTGG GCACCCGGTA TTTTTATCGAC TCTTCTTCTG 1501 TTTTTTGCAAA TATTTTTTTGG GCACCCCGGTA TTTTTTTTTGGA TCTTCTCTC 1501 TTTTTTGCACCC TGGCGCC TCTCCCCT AACGCTCTC TCAACCGA TCCAAGCCTTC 1501 TTTTTTCCCCT TCAGACACCT TCCAAGCGTAT TCTTCTTCTA TTTTTTTTTT | | | | | | |
| 661 TCGATAGACT TGCATAGACT TGCATAGACT TGTACCACA AAGAGGCAT AGAGGCAT TCACCCACA TCACCCCACA TCACCCACA TCACCCCACC TCACCCCCCC GACCCATTCA TCACCCCACC GACCCATTCA TCATCCCACA CCATTCCCTC GACCCATTCA TCACCCCACC TCACCCCCCC GACCCATTCA TCACCCCACC TCACCCCCC GACCCATTCA TCACCCCACC TCACCCCCCC CACCCTCC TCACCCCCCC CACCCTCC CACCCTCCAC TCACCCCCCC CACCCTCC CACCCTCCAC CACCCCCCC CACCCTCC CACCCCCCC CACCCCCCC CACCCCCCC CACCCCCC | | | | | | |
| 651 TGCATAGACT ACTITCTGAGG GTGACACCA AAATTTGTGA GCGGATAGTT 751 GGGCCCTCTT CGTCTCTCTG TTCCGGTGAG TCCCTGTCCT TGCCCTAGAT 751 GGGCCCTCTT CTCGGTTAG ATCATGAGC TCCAAGATCT TGCCCTAGAT 851 CATTTTGACC CATTTCCCGTTAG ATCATGAGC TCCAAGATCT CTCTTGGAAT 851 CATTTTGACG ATCAGGTCTC TTCGGCTAG TTCAGGCTCAG ATCATGAGG 901 GTTGGCCCAT CAGGTCGTC TTCGGCGCA CGGGCCTCAG CACAGTAGG 901 GTTGGCCCAT CAGGTCGTC TTCGTCGGCA CGGGCCTCAG CACAGTAGG 911 GTTGGTACAA CCATTCCTTC TGTTCGGCTA TTCAGGCTCAAGATCAT 1001 ACAGTTTTCT CGGTCAG ACCATTCATT TGACCAGGAAATAT 1001 ACAGTTTTCT CGGCCAC CGGCCTCAG CACAGTAGGA 1001 GTTGAATCAA CCATTCCTTC TGATACATTC GTTAAGGCCA ATCTTTGGAAA 1001 ACAGTTTTCA CCCAAG TGATTCATCAT CTTCAGCCC ATTCTTGCAA 1001 GGCAATATAA ACCATTCCTTC TGATACATTC CTCTCCGAGT ATTTTTCAA 1001 ACAGTTTCAA CATTCCACT CTTGCCTCCG CTTTTTTAGC CCCAACATAGG 1101 GGCAATATAA ACTGGTCACAC TCTCATCCCC CTTTTTTAGC CCCAACATAGG 1101 ACAGTTTCAA ACTTTCAGCC CATCCTTCT CTTTGCTCCC 1101 ACAGTTTCAA ACTTTCAGCC CATCCTTCTC CATCCTCTC CATCCAGAGAGT CCCTCAACATAG 1101 ACAGTTTCAA ACTTTCAGGC CACCACCAGC CACCACCAGG 1101 ACAGTTTCAA ACTTTCCGC CATCCTCTC CATCCAGAGAGT CCCAACATAGG 1101 ACAGTTTCAAA ACTTTCAGGC CACCACCAGG CATCCACTCC 1101 ACAGTTTCAA ACTTTCAGGC CACCACCAGG ATCATTCCCC 1101 ACAGTTTCAA ACTTTCAGGC CACCACCAGGT CACCACCAGG ATCATTCCCCA 1101 ACAGTTTCAAAATT TCAGAATAAGA ATTACATAGA CTTCTTGGTCAACA 1101 ACAGTTTCAAAATT TCAGAATAAGA ATTACATAGA CTTCTTGGTCATCA 1101 ACAGTTTCAAAATT TCAGAATAAGA ATTACATAGA CTTCTTGGTCATCA 1101 ACAGTTTCAAAATT TCAGAATAAGA ATTACATAGA CTTCTTGGTCATCA 1101 ACAGTTTCTCAA TTAGACCAGA CACACCAGCT TCTTTGACCACAA TCAAAATAGA ATTACATAGA CTTCTTTTTTTTCAA TTATACATAAT TTTTCAGAC TCAAATAGAA TTTTTTTTTT | | | | | | |
| 701 AAGAGGCAT ACCTOTICG TICCGGTGA TICCTGTCCT TGGCCTAGAT 751 GGGCCCTCTT CSTAGCGGA GAGGGCATCA TAGCACTIT TGACATATGE 801 TTGATCCATT TCTCGGTTAG ATCATGGACT 851 CATTITGACG ATCCTTCCTG GTTTCGGCTT 901 GTTGGCCCAT TCAGGTGGTC TTCGTCGGCT 901 GTTGGCCCAT TCAGGTGGTC TTCGTTGGCAT 1001 ACAGTTTTCT GGTCGCCCTC GAGCCATTCA TGTTCAGCCC ACAGTAGAC 951 GTTGTCTACAA CCATTCCTTC TGATACATTC GGTAAGGTCA TCCTTTGGAA 1001 ACAGTTTTCT GGTCGCCCTC GAGCCATTCA TGTTCAGCC ATTCTTGGAA 1001 GTTGAATCGA CCATTCCTTC TGATACATTC GGTAAGGTCA TCCTTAGCTC 1101 GTTGAATCGA CAGTTCACT TGTTCATCC TTGCTCACC ATTCTTGGAA 1101 GGCAATATA ACGTTCACT CTTGCCTCC CGTTTTTAGC CCAACATGG 1201 GCCATTATAA ACTTGTCAGC CATCTCTCC CGTTTTTAGC CCAACATGG 1201 GCCATTATAA ACTTGTCGGC CATCTCTCC AATACTTCAA TGGAGCGCC 1251 GGGCAGCTG GAATACCAAG TCAATGCTC TCCGGTGT GATTGTTTGA 1201 ACATTTTCAA CAAGATGAGG GAGACTTGTT CTTTGGAGAA ACATTTTCAA CAAGATGAGG GAGACTTGTT 1401 TCATAAATTT TCAGATAAGA GAGACTAGT CTTTCGGGGT GGTCTACCA 1451 TGGGCGCGC TCATCACTGT AGGGTTCCT CTTCGGGGT GGTCTACCA 1451 TGGGCGCGC TCATCACTGT AGGGTTGCT GACTACCAG GGTCTTACCA 1451 TGGGCGCGC TCATCACTGT AGGGTTGC GGTCTTACCA 1551 TGTTCTCTCA TTTGATCCCG AAGCGTGCT TTTTTTCGGTTT CAGTTCTCTC 1601 CATTTTCTC AGAATGGCCC TGAGGGTGCT TTTTTCGTTTT CCATTTCTTC 1601 CATTTTTTTTCA AGAATGCCC TGAGGGTGCT TTTTTCGTTTT CCATTTCTTC 1601 CATTTTTTTGAGA TACTCTGTTACT GAAGGGGGA GGTCGTCT TTTTTTGGTCAT 1701 GCTGGTGCAA TGCAAGTCCT TGCATTTTCT CAGCCAAGCT TCATTCTTCT 1701 GCTGGTGCAA TGCAAGTCCT TGCATTTTCT CAGCCAAGCT TCATCTACTT 1701 GCTGGTGCAA TGCAGTCA TGCATCTTTCT CTAAATACCT CCTTGAGCT 1751 TTTTTTGAGA ATGCCCGTCA GCATTTTTCT CAGCCAAGCT TCAGCTAACCTA 1751 TTTTTTGAGA TACCCAGA TCCTTTCTTC CTAAATACCT CCTTGATCT 1701 GCTGGTGCAA TGCAGGTCA TCCTTCACCAGA CGTCTCCTTTTT 1701 GCTGGTGCAA TGCAGGTCA TCCTCTCACAGA CGTCTCCTTTTTTTTTT | | | | | | |
| 801 TTGATCCATT CTCGGTTAG ATCATGGC TGCAGAGTC CTCTTGGCAT 851 CATTITGACG ATCATGCTG CTTTCGGCT GTTCGCGCT GTTCGCAGT 851 CATTITGACG ATCATGCTC GTTTCGGCT GTACCGAGGT CAATCGATGG 901 GTTGGCCAT TCAGGTCGTC TTCGTCGCA CGGCCCTCAG CAATCGAGG 901 GTTGGCCAT TCAGCCCCC GAGCCATTCA TGTTCAGCC ACACTGAGG 901 ACAGTTTCT GGTCCCCCC GAGCCATTCA TGTTCAGCC ATTCTGGAAA 1051 GTTGCATACA CCATTCCTTC TGATACATTC GTTAGACCC ATTCTGGAAA 1051 GTTGCATACA CCATTCCTTC TGATACATTC GTTAGACCC ATTCTGGAAA 1051 GTTGAATCGA GCGAGAAGT CCCTCAATCC CTCTCCGAGT GATTCTTGGAA 1051 GGCAATATGA ACTTGTCGGC CATTCATTCC 1151 TGGCAAATA ACTGTCACT CTTGCCTCC CGTTTTTAGC CCCAACATGG 1251 GGGCAGCTGT GAATACCAG TCAATCCTC ATTTTTCAGA TGGAGGCGCGC 1251 GGGCAGCTGT GAATACCAAG GAGACTTGT CATTCTTCA ATCATTCCCAA 1301 ACATTTTCAA CAAGATGAGA GAGACTTGT CTTTGAGAGA ATCATTGCCC 1301 ACATTTTCAA CAAGATGAGA GAGACTTGT CTTTGAGAGA ATCATTGCCC 1301 TATACCGCAG TGACATAATG ATTACATGAT CTTTGAGAGA ATCATTGCCC 1401 TCATAAATTT TCAGAATAAGG TGGCATCTTC AAACGTCTTGG GTATGCCATA 1401 TCATAAATTT TCAGAATAAGG TGGCATCTTC AACCTCTTGGGGTT GTATGCCATA 1401 TCATAAATTT TCAGATAAGG TGGCATCTTC AACCTCTTTGGGGTT GTATGCCATA 1401 TCATAAATTT TCAGATAAGG TGGCATCTTC AACCTCTTTGGGGTT GTATGCCATA 1401 TTTTTGGAAA TATTTTTGGG GCACCCGGTA TTTTATCGAC ACCTTCTTCTG 1551 TGTTCTCTCA TTTGATCCCC AAGCATTTTA TTTTTTTTTCGAC ACCTTCTTCTTC 1501 TTTTTTGGAAA TATTTTTTGG GCACCCGGTA TTTTATCGAC TCTTTCTTCT 1501 TTTTTTTCAGCAC TGCAGTATTA TTTTTTTTTCAGC TCTTTCTTCT 1501 TCTCACCG TGCGGCCC TCTCCCGTA TTTTATCCACC TCTTTCTTCT 1501 TCTCACCG TGCGGCCC TCTCCCTTC TCTTTTTT CCATTTTTC CATTTTTTC 1501 TCTTCACCG TGCGGCCC TCTCCCTT TCTTCTTCT TCTTTTTC TCATTCTTC 1501 TCTTCACCG TTCGCGTCA GCATATTTT TTTTTTTCTTC CATTTTTTC 1501 TCTTCACCG TGCGGCTCA GCATTTTTC TCAAATACCC CCTGAGTGGC 1501 TCTCCCTTC TCCTCTACCAACC TTCCACACC TTCACCCTTA 1501 TCTTCACCC TGCGCTCA GCATTTTTC TCAAATACAC CCCAAAGAT TTTTTTTCCATTC TCAGACGACATA AACATCCC TTCACCCTTAAACACAAAAAAAAAA | | AAGAGGGCAT | =CCTCTCTCG | TTCCGGTGAG | TCCCTGTCCT | TGGCCTAGAT |
| 851 CATTITGACE ATCCITCCTG STITCEGCT GTACCAGGT CAATCGATGA 951 GTTGGCCCAT TCAGGTCGTC TTCCTCGCCA CGGGCCTCAG CACAGTAGA 951 GTTGTGTATT TCATCCCAAG TGGTTGGAGG ATATTTCATA AGTTGGTTTA 1051 ACAGTTTTCT GGTCGCCCTC GAGCCATTCA TCTTCGGCAA 1051 GTTGGTAAA CCATTCCTCT GAGCCATTCAGCC ATTTCTGGAAA 1051 GTTGCACAA CCATTCCTCT GAGCCATTCA TGTTCAGCCC ATTTCGTCTT 1101 GTTGAATCAA CCATTCCTTC TGATACATTC GGTAAGGTCA TCCTTACTCT 1101 GTTGAATCAA CCATTCCTCC GAGCCATTCC CTCTCCGAGT GATTCTTTGA 1201 GCCATTATGA ACTGTCCACC CTCTCCCG CGTTTTTAGC CCCAACATGCG 1201 GCCATTATGA ACTGTCCGC CATCTCTCC CGTTTTTAGC CCCAACATGCG 1201 GCCATTATGA ACTGTCGCC CATCTCTCC AATACTTTCAGCAC 1301 ACATTTCAA CAAGATGGAC GAGCCTTCT CTCCGAGT GATTCTTCAC 1301 ACATTTCAA CAAGATGGAC GAGCCTTCT CTTTGGAAGA ATCATTGCCC 1301 TTTACCGCAG TGAACATAAG GTACACTAC 1401 TCATAAATTT TCAGATAAAG ATTACATGAT CTTTGGAGGT CGTACCAC 1401 TCATAAATTT TCAGATAAAG ATTACATGAT CTTTGGAGGT CATCACCAC 1401 TCATAAATTT TCAGATAAGA TAGCAAGTCCT GACCAACATGC 1501 TTTTTTGGAAA TATTTTGGG CACCCGGTT TTTTACCAC CCAGCGTCTC 1501 TTTTTTTGAAA TATTTTTGGG CACCCGGTA TTTTTACCAC CCAGCGTCTC 1601 CATTTTCTC ACACTGCC AAGCATTTTA TTTTCGTTTT CATTTCTTCTC 1601 CATTTTCTC ACACTGCC TAGCGGTGCT TTTTTTTTTT | - | | | | | |
| 901 GTTGGCCAT TCAGGTCGTC TTCGTCGCA CGGCCTCAG CACAGTAGA 901 GTTGGCCAT TCAGGTCGTC TTCGTCGCA CGGCCTCAG CACAGTAGC 951 GTTGTGTATT TCATCCCAAG TGGTTGGAG ATATTTCATA AGTTGGTTTA 1001 ACAGTTTTCT GGTCGCCCTC GAGCCATTCA TGTTCAGCCC ATTCGGATA 1011 GTTGAATCGA CACTTCCTTC TGATACATTC GTAAAGTCAT TCCTTACTCT 1101 GTTGAATCGA CACTTCCTTC TGATACATTC GTAAAGTCAT TCCTTACTCT 1101 GTTGAATCGA CACTTCCTTC TGATACATTC GTAAAGTCAT TCCTTACTCT 1101 GTTGAATCGA CACTTCCTTC TGATACATTC CTCTCGAGT GATTGTTTGA 1101 GCATTATGA CACTTCATC CTTGCCCC GGTTTTTTAGC CCCAACATGG 1101 ACAGTTTTCAA CACAGTAGTC CTTGCCTCC GATTTTTTAGC CCCAACATGG 1101 ACATTTTCAA CACAGTAGGA GAGACTTCT CTTGGAGA ATTCCCCCAACATGG 1101 ACATTTTCAA CACAGTAGAGA GAGACTTCT CTTGGAGA ATCATTCCCC 1101 TTACCGCAG TGACATAATG ATTACATGAT CTTTCGAGAG ATCATTCCC 1101 TCATAAAATTT TCAGAATAAGG TGACATCATCA ACGCTCTTGG GGTCGTACCA 1101 TCATAAAATTT TCAGAATAAGG TGACATCTC CTTCGGGAG ATCATTCCCC 1101 TTTTTGGAAA TATTTTTGGG GCACCCGGTA TTTTATCGGCTT 1101 GCGCGGCT TATCACTGT AGGGTTGCT CACAACCGA CACAGGTCTC 1101 TTTTTGGAAA TATTTTTGGG GCACCCGGTA TTTTATCCTGC CACAGGTCTC 1101 GCTGGTGAA TACCTCCC TACAGGTG AGCCATTTA TTTTCCTTTT CACAGTAGAGA ACCTTTTACTGAG AGCCATCTT ACCTGATACACGA GTATACTGAC TTTTATCTTTC CACTTCTTCT CAAGATGACA ACCTGTTACT TTTTCTTTTC | _ | | | | | |
| 951 GTTGGCCCAT TCAGGTCGTC TCGTCGGCA CGGCCTCAG CACAGTAGGC 951 GTTGTTATTT TCATCCCAAG TGGTTGAGG ATATTTCATA AGTTGGTTA 1051 GTTGCTACAA CATTCCTCC GAGCCATTCA TGTTCAGCCC ATTCTGGAAA 1051 GTTGCTACAA CATTCCTTC TGATACATTC GGTAAGGTCA TCCTTACTCT 1101 GTTGAATCA CATTCCTTC TGATACATTC GGTAAGGTCA TCCTTACTCT 1101 GTTGAATCA CATTCCTTC TGATACATTC GGTAAGGTCA TCCTTACTCT 1101 GTTGAATCA CATTCCTCC CGTTATCATC CTCCCAGACTTGA 1201 GCCATTATCA ACTCTTCCGC CGTTTTTCAA TGGAGCGCGC 1201 GCCATTATCA ACTCTTCCGC CATTCTTCA AATATTTCAA TGGAGCGCGC 1201 GCCATTATCA CAAGATTGGA GAGCATCC TCCGGTAAGG ACTCTTCCGCAACATGC 1301 ACATTTTCAA CAAGATGGAG GAGCTTCT TCTTGGAGAG ATCATTGCCC 1301 ACATTTTCAA CAAGATAGGA GAGCTTCTT CTTTGGAGAG ATCATTGCCC 1301 TCATAAATTT TCAGATAAGG GAGCTTCT CTTTGGAGAG ATCATTGCCC 1301 TCATTAATTT TCAGATAAGG TGGCATCTTC ACGTTATGC GATTAGCCAT 1401 TCATAAATTT TCAGATAAGG TGGCATCTTC ACGTCTTGG GATTAGCCAT 1401 TCATAAATTT TCAGATAAGG TGGCATCTTC ACGTCTTGA GAGTAGCCAT 1401 TCATTAATTT TCAGATAAGG TGGCATCTTT ACTCTTCTAGCGT 1501 TTTTTGGAAA TATTTTTGG GCACCCGTT TTTTATCGAC CCACCGTTC 1501 TGTGAGTGAT ACCTGTATCT GAGGGGTGT ATTACCTGCA TCTTCTTCT 1601 CATTTTCTC AGAATGGCG TGAGGGGTGTC ATTACCTGCA TCTTCTTCT 1601 CATTTTCTC ACCGC TGCAGTTTTTC TCAAATTACT CCTGAGTGGG 1701 GCTGGTGCAA TGCAAGACTT TGCATTTTTC TCAAATTACT CCTGAGTGGG 1701 GCTGGTGCAA TGCAAGACT TGCATTTTTC TCAAAATACCT CCTGAGTGGG 1701 TCTTCTCCC TGCATTTTTTC TGCATTTTTC TCAAAATACCT CCTGAGTGGG 1701 GCTGGGAGGT TTAGCCGGTA TGCCTTGCC TTTCTTCTTC TCAAATTACT CCTGAGTGGG 1701 GCTGGTGCAA TGCAATACT GCTGTGAGG AGGGGTGAT TCAGAGGTGG 1701 GCTGGTGCAA TGCAATACT GCTGTGAGG AGGGGTGAT TCAGAGTTGT TAGCCGGTTA TGCCTTTGCC TTTCTTCTTC TCTTCTTCT TCTTCTTCTT TCTTCT | | | | | | |
| 951 GTTGTGTATT CATTCCAAG TGGTTGAGG ATATTTCATA AGTTGGTTTA 1001 ACAGTTTTCT GGTCGCCTC GAGCCATTCA TGTTCAGCC ATTCTTGAAA 1051 GTTGAATCA CCATTCCTTC TGATACATTC GGTAAGGTCA TCCTTACTCT 1101 GTGGAATCA CCATTCCTTC TGATACATTC GGTAAGGTCA TCCTTACTCT 1101 GTGGAATCA GCGAGGAAGT CCCTCAATCC CTCTCCGAGT GATTGTTTGA 1151 TGGCAAATTAT ACTTGTTCACT CTTGCCTCC GGTTTTTAGC CCCAACATGC 1251 GGGAGCTGT CAATACCAAG TCAATGCTC TCCGGTAAAGG 1251 GGGAGCTGT CAATACCAAG TCAATGCTC TCCGGTAAAGG 1251 GGGAAGCTGT CAATACCAAG TCAATGCTC TCCGGTAAAGG 1351 TTACCGCAG TGAATAACAAG GAGACTTTTT GAGAGA ATCATTGCCC 1351 TTACCGCAG TGACATAAAG TCAATGCTC TCCGGTAAAG 1401 TCATAAATTT TCAAGATAAGA GTGCACCACA 1401 TCATAAATTT TCAAGATAAGA GTGCACCAGT 1551 TTTTTGGAAAA TATTTTTGGG GCACCCGGTA TTTTTTCGATCAC TCATCACCTG 1551 TGTTCTCCCA TTTGATCCCG AAGCATTTTA TTTTCGATCAC TCTTCTTCG 1651 TGTGAGTGAT ACCTTTACT GAAGGGGGGAG GGTCGTCCTG CAATTCTTCT 1651 TGTGAGTGAT ACCTTTACT GAAGGGGGAG GGTCGTCCTG TTTTCTTCTG 1651 TTTGTTACCGC TGCAAGTCATT TTTTCGATCAC TCTTCTTCTC 1651 TTTGTTCACCG TGCAAGTCCT TGCATTTTTC TCAATACCTG TTTTGTATATATAT 1651 TCTTCACCG TGCGAAGTCCT TGCATTTTCT TCAATACCTG TTTTGTCATCT 1801 TCTTCACCG TGCGATCTC GAAGGGGGAG GGTCGTCCTG TTTTGTCATTC 1801 CCGCGGGAT TTGCGATACCAG CCTGCATTTCTTC TCAAGATCACAACCAAACCA | | GTTGGCCCAT | TCAGGTCGTC | TTCGTCGGCA | CGGGCCTCAG | CACAGTAGGC |
| 1051 GTTGCTACAA CATTCCTTC GAGCCATTCA TGTTAAGGCC ATTCTGGAAA 1051 GTTGCTACAA CATTCCTTC TGATACATTC GGTAAGGTCA TCCTTACTCT 1151 TGGCAAATAT ACGGAGGAAGT CCCTCAATCC CTCTCCGAGT GATTGTTTGA 1201 GCCATTATGA ACTTGTGGCC CATCTCTTC AATATTTCAA TGGAGCCGCA 1201 GCCATTATGA ACTTGTGGC CATCTCTTC AATATTTCAA TGGAGCCGCA 1301 ACATTTTCAA CAGATGGAG GAGACTGTT CTTTGGAGAG GTCTCCCCGA 1301 ACATTTTCAA CAGATGGAG GAGACTGTT CTTTGGAGAG GTCTCCCCGA 1301 TCATAAATTT TCAGAATAGGAG GAGACTTGTT CTTTTGGAGAG ATCATTGCCC 1401 TCATAAATTT TCAGAATAGGAG GAGACTTGT CTTTTGGAGAG ATCATTGCCC 1401 TCATAAATTT TCAGAATAGG TGGCATCTG GACTAACCGA TCATCACTGT AGGGTTGCC GACTAACCGA CAGCGTCTC 1401 TCATAAATTT TCAGAATAGG TGGCATCTG GACTAACCGA CAGCGCTAT 1451 TGGGGCGCT TCATCACTGT AGGGTTGCC GACTAACCGA CAGCGTCTC 1401 TCTTTCTCCA TTTGATCCC AAGCATTTTA TTTTCGGTGTC CAGCACACTG 1501 TTTTTTTCTCA TTTGATCCC AAGCATTTTA TTTTCGTTTT CAGATTACTTC 1601 CATTTTCTCC AGAATGGCG TGAGGGTGTC ATTACCTGCA TTATATAATAT 1701 GCTGGTGCAA TCCCTGTACCA GAGCGTGTC TTTTTTTTTT | | | TCATCCCAAG | TGGTTGGAGG | ATATTTCATA | AGTTGGTTT à |
| 1051 GTTGCTACA CCATTCCTTC TGATACATTC GCTAAGGTCA TCCTTACTCT 1101 GTTGAATCGA GCGAGGAGT CCCTCAATCC CTCTCCGAGT GATTGTTTGA 1201 GCCATATGA ACTTGTCGC CATCTCTCG AATATTCAA TGGAGCGCGC 1251 GGGCAGCTGT GAATACCAAG TCAATGCTC TCCGGTAAGG GTCTCCCCGA 1301 ACATTTCAA CAAGATGAGG GAGACTTGTT CTTTTGAGAGA ATCATTGCCC 1351 TTTACCGCAG TGACATAATG ATTACATGAT CTTTGGAGAG ATCATTGCCC 1351 TTTACCGCAG TGACATAATG ATTACATGAT CTTTGGAGAG ATCATTGCCC 1401 TCATAAATTT TCAGATAAGG TGGCATCTTG AACGTCTTG GTATGCCAT 1401 TCATAAATTT TCAGATAAGG TGGCATCTC AACGTCTTG GTATGCCAT 1501 TTTTTGGAAA TATTTTTGGG CCACCCGGTA TTTTATCGAC CCACCGGTC 1501 TTTTTGGAAA TATTTTTGGG GCACCCGGTA TTTTATCGAC TCATTCTTC 1601 CATTTTCTC AGAATAGGC TGAGGGTGC ATTACCTCCATTTTTTTCTCATTCTC TTTGATCCCA AGCATTTTA TTTTCGTTTT CCATTTCTTC 1601 CATTTTCTC AAGATGCCC TGAGGGGTGC ATTACCTGCA TCATTCTTC 1601 CATTTTCTC ACAAGTCCT TGAGGGGGAG GTCCGACCGTCA TTTATTAATAT 1701 GCTGGTGAA ACCCCGGTCA GCATATTTCT CTAAATACCT CCTGAGTGGC 1701 GCTGGTGAA TCCCAAGTCCT TGCATTTTCT CTAAATACCT CCTGAGTGGC 1701 TCTTCACCCC TGGTGGCC TCTTCCGTTG TGGACGTGC TTCGAGTGGC 1801 TCTTCACCCC TGGTGGCC TCTTCCGTTG TGGACGTGC ACCTCCTTCA 1801 TCTTCACCCC TGGTGGCC TCTTCCGTTG TGGACGTGC ACCTCCTTCA 1801 TCTTCACCCC TGGTGAGGG AGGGGTGATC CACTTCTCC 1801 TCTTCTCCT TAACGAGATT TGCCTTCACCC TTCTATTTCG GAGACCTCAT 1901 GGGAGAGGTG TTAGGCGTTA TGCCTTCACCC TTCTATTTCG GAGACCTCAT 1901 GGGAGAGGTG TTAGGCGTTA TGCCTTCACCC TTCTATTTCG GAGACCTCAT 1901 TCTTCTCCT TACCTGCCAT TCCAGATCTG GTTCAAACAG AAGATAGAAA 101 TCTTCTCCT TAACTGCAT TCCCATTCACAGA AGCACCACAC 101 TCTTCTCTTT TAACTGCAAT TCCCTTCACATCC TCTATATCAG GAAACAAGAAA 101 TAAACCTACA ACCTTTTAAT AAATTAAATT AATTATTAT AAATTATATT AAATTACATA AACTTCCAGAT TAAAATAAA ACCTTCCAGAT CACCAAATAA AAAATACAAAAAAAAAA | | ACAGTTTTCT | | | | |
| 1101 GTIGAATCGA GCCAGGAGT CCCTCAATCC CTCTCCAGT GATTGTTGC. 1151 TGGCAAATAT £TCGTTCACT CTTGCCTCCG CGTTTTTACC CCCAACATGG 1251 GGCCAGCTGT £AATACCAAG TCAATGCTCC CTCGGTAAGG GTCTCCCCGA 1301 ACATTTCAA CAAGATGAG GAGACTTGTT CTTTGGAGAG GTCACTCCCA 1301 TTTACCGCAG TGACATAATG ATTACATGAT CTTTCGGAGGA GTCACTCCCA 1401 TCATAAATTT TCAGATAAGG TGGCATCTT AACGTCACA 1401 TCATAAATTT TCAGATAAGG TGGCATCTT CACGTAACCA CCAGCGTCT 1501 TTTTTGCAAA TATTTTTGGG GCACCCGGTA TTTTATCACA CCAGCGTCTC 1501 TTTTTGCAAA TATTTTTGGG GCACCCGGTA TTTTATCACCA CCAGCGTCTC 1501 TTTTTTCCTCA TTTGATCCCC AAGCATTTA TTTTCGTTTT CCATTTCTTC 1601 CATTTCTCC AGAATGACC TGAGGGTGTC ATTACCTGCA TATTACATTAC | | GTTGCTACAA | CCATTCCTTC | TGATACATTC | GGTAAGGTCA | TCCTTACTCT |
| 1151 TGCCAAATAT ACGTTCACT CTTGCCTCG CGTTTTAGC CCCAACATGG 1201 GCCATTATGA ACTTGTCGC CATCTCTTC AATATTCAA TGGAGCGCGC 1301 ACATTTCAA CAAGATGAG GGCAGCTGT CAATACCAAG TCAATGCTC CTCGGTAAGG GTCTGCCCGA 1301 ACATTTCAA CAAGATGAG GAGACTTGTT CTTTGGAGAG GTCTGCCCGA 1301 TTTACCGCAG TGAACAATAGG ATTACATGAT CTTCGGGAGC GTCGTACCA 1301 TTTACCGCAG TGAACAATAGG TGCAATCTT CATCGGGAGC GTCGTACCA 1301 TTTACACGCAG TGAACAATAGG TGCAATCTT CAACGACTGG GTATGGCATA 1401 TCATAAAATTT TCAGAATAAGG TGCAATCTT CAACGACTGG GTATGGCATA 1451 TGGGGCGCT TCAACCGT AGGGTTGCTC GACTAACCGA CCAGCGTCTC 1501 TTTTTGGAAA TATTTTTGGG CACCCGGTA TTTTACGAC CCAGCGTCTC 1501 TTTTTGGAAA TATTTTTTGG CACCCGGTA TTTTACTGAC CCTTTCTTTGG 1501 CATTTTCTC AGAATGCCG AGCAATTTA TTTTTCGTTTTT CCATTTCTTC 1601 CATTTTCTTC AGAATGCCG TGAGGGTGC ATTACCTGCA TTATTAATAT 1651 TGTGAGTGAT ACCTGATACT GAAGGGGAG GGTCGTGCT TTTGGTCATT 1701 GCTGGTGCAA TCCAAGTCCT TGCATTTTCT CAAATACCT CCTGAGTGGC 1751 TTTGTTGAGG ATGCCAAGTCC TGCATTTTCT CAAGACCC CCTGAGTGGCT 1801 CCTGCGAA TCCAAGTCCT TGCATTTTCT CAAGACCC CCTGAGTGGC 1801 CCTGCAGATC TCCGATACCT TGCATTTCT CAAGACCC CCTGCCGCA 1801 TCTTCACCC TGCGATACT CCTTGAGGA AGGGGTGAT CACTTCGTCG 1901 GGGAGAGGTG TTAGGGACT CCTTGAGGA AGGGGTGAT CACTTCGTCG 1901 GGGAGAGGTG TTAGGGATT TGCCTTCGCC TTCTATTTC GAGACCCCATC 1901 CCAGGGAGGTG TAAGAGAATA TGCCTTCACCT TAACAGCAA CACTTCCTCT 1901 TCTTCTCCCT TAACAGACTA TCCCTCACGA CGCGCCAAA TTCTACCCT 1901 TCTTCTCCCT TACCTGCCAT GTCAGATCTG GGTGTACAAG GAAGTAGAA 2001 TAAACCTAGT TAATGATAAT AACTTCAAGA CACTTCATCTT 1951 TAAACCTAGT TAATGATAAT AACTTCAAGA CAGCACATAA ATAACAGCAA 2101 ATTCAAGAT ACCTAGCAT TCCTCACAGA CGCGCCAAA TTCTTTGACC 2101 ATTCAAGAT ACCTAGAATA AACTTCAAGAT CAAAAAATAT AACTTCAAGAT CAACAAAGAA AACTTCAAGAT CAACAAAAAAAAAA | 1101 | GTTGAATCGA | GCGAGGAAGT | CCCTCAATCC | CTCTCCGAGT | GATTGTTTGA |
| 1251 GGGAGCTGT 1251 GGGCAGCTGT 1251 GGGCAGCTGT 1301 ACATTTTCAA 1252 CAGGCAGCTGT 1301 ACATTTTCAA 1253 CAGGCAGCTGT 1301 ACATTTTCAA 1253 CAGGCAGCTGT 1301 ACATTTTCAA 1254 TATACCGCAG 1401 TATACCGCAG 1401 TCATAAATTT 1255 TAGGCAGCGCT 1501 TTTTTGGAAA 1551 TGTTCTCCA 1501 TTTTTTGGAAA 1551 TGTTCTCCA 1601 CATTTTCTC 1651 TGTGAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGC | 1151 | | | | | |
| 1301 ACATTTCAC TACACCAG TACATAATA ATTACATAAT TATACCCCAG TACATAATA ATTACATAAT TATACACCAG TACATAATA ATTACATAAT TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACACCAG TACAATACCA TACACCAG TACACCAA TACACCAG TACACCAA TACACCAG TACACCAAACAT TACACCAG TACACCAAACACAT TACACCAC TACTACCCC TACACCAC TACTACCCC TACTACCAC TACTACCCC TACTACCCC TACTACCCC TACACCCCT TACACCCC TACACCC TACACCCC TACACCC TACACCC TACACCC TACACCC TACACCC TACACCC TA | 1201 | | | | | |
| 1301 ACATTTCAC TACACCAG TACATAATA ATTACATAAT TATACCCCAG TACATAATA ATTACATAAT TATACACCAG TACATAATA ATTACATAAT TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACAGATAAGA TACACCAG TACAATACCA TACACCAG TACACCAA TACACCAG TACACCAA TACACCAG TACACCAAACAT TACACCAG TACACCAAACACAT TACACCAC TACTACCCC TACACCAC TACTACCCC TACTACCAC TACTACCCC TACTACCCC TACTACCCC TACACCCCT TACACCCC TACACCC TACACCCC TACACCC TACACCC TACACCC TACACCC TACACCC TACACCC TA | 1251 | GGGCAGCTGT | GAATACCAAG | TCAATGCTCC | TCCGGTAAGG | GTCTCGCCGA |
| 1401TCATAAATTTTCAGATAAGGTGGGATCTTGAACGTCTTGGGTATGGCATA1451TGGGGCGGCTTCATCACTGTAGGGTTGCTCGACTAACCGACCAGCGTCTC1501TTTTTTGAAATATTTTTGGGGCACCGGTATTTTATCGACTCTTCTTGG1551TGTGTCTCTCATTTGATCCCGAAGAATTTATTTTCGTTTTCCATTTTCTC1651TGTGAGTGATECCTGTTACTGAAGGGGGAGGTCGTGCTGTTTGTCATTC1701GCTGGTGCAATCCAGTCCTTGCAATTTCTCTAAATACCTCCTGAGTGGT1751TTTGTTGAGGATGCCGGTCAGCATATTTCTCAGCCAAGCTTCGAGTAGCT1801TCTTCACCGCTGGTGGCGCCTCTTCCGTTGTGGACGTGGAAGCTCCTTTA1901GGGAGAGGTGTTAGGCGGTATCCTTCAGCGACCTTCTCTGGAGACTCCT1901TGATGGTGTTAAGAGGGTTGGTAGTGAGATTGCACTTCCCCACTTCCTCG2001TCTTCTCTCTTAACCTGCATGTAGTGAGATTGGCCACTGCCTTCATCTTT2101CTAAAGTTTTAACTAGACTATCCTCACAGAGGTGTACAAGGAAGTAGGAG2201TAAACCTAGTTAATGATAATAACTTCAGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATTTAATGATAATGAATAAAGAGAGAATAAATTAACCACAATTAATCAATAAATTACCACAAAATTACCACAAAATTACCACAAAATTACCACAAAATTACCACAAAATTACCACAAAATTACCACAAAATTACCACAAAAATATTTTTTTCAAGAAAATATCAACCACTCAACAA | 1301 | | | | | |
| 1451 TGGGGCGCT TCATCACTGT AGGGTTGCTC GACTAACCGA CCAGCGTCTC 1501 TTTTTGGAAA TATTTTTGG GCACCCGTTA TTTTATCGAC TCTTTCTTGG 1551 TGTTCTCTCA TTTGATCCCG AGCATTTTA TTTTATCGAC TCATTTCTTG 1601 CATTTTCTTC AGAATGCCT TGAGGGTGTC ATTACCTGCA TTTATATATAT 1701 GCTGGTGAA TCCAAAGCCT TGCATTTTCT CTAAATACCT CCTGAGTGGG 1751 TTTGTTGAGG ATCCCGCT TGCATTTTCT CAACCCACCT TCGAGTAGCT 1801 TCTTCACCGC TGGGGGCC TCTTCCGTT TGGACGTGGA AGCTCCTTTA 1851 CCGCGGGATG TTGCGATACT GCCATACTTT CAACCACGC AGCTACTTTG 1901 GGGAGAGGTG TAAGAGGTTG TCAAGACTAC TCAATACCT CACCAAGCT TCGAGTAGCT 1901 TCTTCTCCCT TAAGAGGTTG TAAGAGGTTG TAAGAGGTTG TAAGAGGTTG TAAGAGGTTG TAAGAGGTTG TAAGAGGTTG TCAAAATACAA ACCTGCTCT TAACACAAAAAAAAA ACCTGCATC CACCAAGCT TCAAAAAAAAAA | 1351 | | | | | |
| 1501 TTTTTGGAAA TATTTTTGG GCACCGGTA TTTTATCGAC TCTTTCTTGG 1551 TGTTCTCCA TTGATCCCG AAGCATTTTA TTTTCGTTTT CATTTCTTC 1601 CATTTCTTC AGAATGCCCG TGAGGGTGTC ATTACCTGCA TTATTAATAT 1651 TGTGAGTGAT ACCTGTACT GAAGGGGGAG GGTCGTGCTG TTTGGTCATT 1701 GCTGGTGCAA TGCAAGTCCT TGCATTTCT CTAAATACCT CCTGAGTGGG 1751 TTTGTTGAGG ATGCCGGTCA GCATATTTCT CAGCCAAGCT TCGAGTAGCT 1801 CCGCGGGATG TTGCGATACT GCTGTGAGG AGCTCCTTTA 1851 CCGCGGGATG TTGCGATACT GCTGTGAGG AGCTCCTTTA 1901 GGGAGAGGTG TTAGGCGTA TGCCTTCGCC TTCTCTTCT 1901 TCTTCTCCCT TAAGAGGTTG GTAGTGAGA AGCTCCTTT 1901 TCTTCTCCCT TAAGAGGTTG GTAGTGAGA AGCTCCAT 1951 TGATGGTGTT TAAGAGGTTG GTAGTGAGA AGCTCCTTT 1901 CTAAAGTTTT TAACTGCCA TGCCATACT GCCTTCGCC 1901 CTTCTCTCT TCTTTTTTTTT GAATTCAAG GAAGTAGGAG 1901 CTAAAGTTTT AAACTACAT TCTCTCACAGA CGCGCCAAA TTGTTTGAC 1901 CTAAAGTTTT AAACTACAT TCTCTCACAGA CGCGCCCAAA TTGTTTGAC 1901 CTAAAGTTTT AAACTACAT TCTCTCACAGA CGCGCCCAAA TTGTTTGAC 1901 CTAAAGTTTT AAACTACAT TCTCTCACAGA CGCGCCCAAA TTGTTTGAC 1901 AAAAAATATA GACTTTTGAT TAAATTAATT AAATTTATT AAATTTATCAA 1901 ATTCCAAGAT AACCTCTTT AGAGAAATAT AAACTTCAAT TCAATACACAA 1901 ATTCCAAGAT AACACCATT AAGAAATAAA GAGAATTA TAAACGATAA 1901 ATTCCAAGAT AAATATAAT CAAGCAAATAA ATAACCGAAA 1901 AACTCCTTTT CAAAGAAAAAAA GAGAATTA TCAATCAAT 1901 AACTCCTTTT CAAAGAAAAAAA GTATGAATAA TAAACGATAA 1901 AACTCCTTTT CAAAGAAAAAAAA GTATGAAATAA GAAAAGTAC 1901 AACTAGCTGT TAGAACACAT TCAAAGAAAAAAAAAAA | 1401 | | | | | |
| TTTGATCCCG AAGCATTTA TTTTCGTTT CCATTTCTC 1601 CATTTCTTC AGAATGGCCG TGAGGGTGT ATTACCTGCA TTATTAATAT 1651 TGTGAGTGAT ACCTGTTACT GAAGGGGGAG GGTCGTCGTG TTTTGTCATT 1701 GCTGGTGCAA TGCAAGTCCT TGCATTTTCT CTAAATACCT CCTGAGTGGG 1751 TTTGTTGAGG ATGCCAGTCA GCATATTTCT CTAAATACCT CCTGAGTGGG 1751 TTTGTTGAGG ATGCCAGTCA GCATATTTCT CAAGCAGCT TCGAGTAGCT 1801 CCGCGGGATG TTGCGATACT GCTGTAGGG AGCCCCATTA 1851 CCGCGGGATG TTGCGATACT GCTGTAGGG AGCCCCTTTA 1851 CCGCGGGATG TTAGGCGTTA TGCCTTCGCC TCTATTTCG GAGACCTCAT 1901 GGGAGAGGTG TTAGGCGTTA TGCCTTCGCC TCTATTTCG GAGACCTCAT 1951 TGATGGTGTT TAACAGGCTT GTAGTGAGAT TGGCCACTGC CTTCATCCTT 2001 TCTTCTCCCT TACCTGCCAT GTAGTGAGAT TGGCCACTGC CTTCATCCTT 2011 CTAAAGTTTT AACTAGACTA TCCTCACAGA CGGCGCCAAA TTGTTTGACC 2151 AAAAAATATA GACTTTTGAT TAAATTAATT AATTATTGTAC 2201 TAAACCTAGT TAATGATAAA AACTTCAGAT CTAAAAGAAA 2251 TCACGGTCAT AGCAGCGTTG AGAAAGATT CAACCAATAA ATAACGAAA 2251 ATGGCATTAA AGTAAATAAA AACTTCAGAT CAACCAATAA ATAACGAAA 2351 ATGGCATTAA AGTAAATAAA AGCAAATAA CAACCAATAA ATAACGAAA 2451 TCGGACCCT TCTCGGATCT AATGAAAAAA AGTAAATAAT CAACCAATAA TAACGATAA 2451 TCGGACCCT TCTCGGATCT AATGAAAAAA GTAAATAAT 2501 GAATCTCTTT AGAAAGGTAG TCTCTGGACCT TCTCGGATCT TTACATCCC CTCTCCCCT 2601 ATCTCTTTT CAAAGGAT TCCTGAGAATA TTACATCAC CTCAAAAGAA 2701 AACTACCTGT TCTGGATCT AAAAAAAAAATATTT TTACATCAC CTCTCCCCT 261 ATCTCTTTT CAAAGAAAAAAAAAAATATTT TTACAACCAAA GAAAAGTCTG 261 ATCTCTTTT CAAAGAAAAAAAAAAAAAATATTT TCAAAAAAAAAA | 1451 | | | | | |
| 1601 CATTTCTC | 1501 | | | | | |
| TGTGAGTGAT TGCAGTCCT TGCAGTGCAG TGCAGTCCT TGCAGTCCT TTTGTTGAGG TTTGCCGGTCA ATGCCGGTCA ATGCCGGTCA GCATATTTCT CAGCCAGAGCT TCGAGTGCA TTTGTTGAGG TTTGCAGGC TTTGCGTCA ATGCCGGTCA GCATATTTCT CAGCCAAGCT TCGAGTAGCT TCGAGTAGCT TCGAGTAGCT TCGAGTAGCT TCGAGTAGCT TCGAGTACT GCAGTCTT TGGACGTCA AGCTCCTTTA TGGACGTCA TGCAGTCCA GCATATTTCT CAGCCAAGCT TCGAGTAGCT TCGAGTACT TGGACGTGA AGCTCCTTTA TGCCTTCCCT TGGACGTGA TTCTCTCCT TAAGGCGTTA TGCCTTCGCC TTCTATTTCG GAGACCTCAT TGCCTTCCCT TAAGGCGTTA TGCCTTCCCC TTCTATTTCG GAGACCTCAT TCTTTTTTTTT TAACCTCCACAG CGTGTACAAG GAAGTAGGAG GAAGTAGGAG CTTCATCCTT TCTTTTTTTT TCTTTTTTTT TCTTTTTTTT | 1551 | | | | | |
| 1701 GCTGGTGCAA TGCAAGTCCT TGCATTTCT CTAAATACCT CCTGAGTGGG 1751 TTTGTTGAGG ATGCCGGTCA GCATATTTGT CAGCCAAGCT TCGAGTAGCT 1801 TCTTCACCGC TGGTGGCGC TCTTCCGTTG TGGACGTGGA AGCTCCTTTA 1851 CCGCGGGATG TTGCGATACT GCTGTGAGGG AGGGGTGATC CACTTCGTCG 1901 GGGAGGGTG TTAGGCGTTA TGCCTTCGCC TTCTATTTCG GAGACCTCAT 1951 TGATGGTGTT TAAGAGGTTG GTAGTGAGAT TGGCCACTGC CTTCATCCTT 2001 TCTTCTCCCT TACCTGCCAT GTCAGATCTG GGTGTACAAG GAAGTAGGAG 2051 CTTCTCTTCT TCTTTTTTTG GAATTGTCC AGTTATAGAT CTAAAAGAAA 2101 CTAAAGTTTT AACTAGCTA TCCTCACAGA CGGCGCAAA TTGTTTGAC 2201 TAAACCTAGT TAATGATAT AACTTCAGAT CTATAATCAA TTGTTTGAC 2201 TAAACCTAGT TAATGATAT AACTTCAGAT CTATAATCAA TTAACAGCAA 2251 TCACGGTCAT AGCAGCGTTG AGGAAAGATT AAATTTGTAT GACAAAGGAT 2301 ATTTCAAGAT CATTAATGAT AGGGGAATAT CAAGCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGAAT CAAGCAATAA ATAACGATAA 2401 GGATGATCT TCTTTTTGAC AATGATAAT CAAGCAATAA TAACGATAA 2401 GGATGATCT TCTTTTTGAC AATGATAAT CAAGCAATAA TAACGATAA 2451 TTGGGACCCT TCTCGGATCT AATGAAAAAA 2551 CTTTTCAAAG AATATTTTA TCAGAGAATAA TAACGATAA 2551 CTTTTCAAAG AATATTTTA TCAGAGAATAA TAACGATAA 2551 CTTTCAAAG AATATTTTA TCAGAGAATAA TAACGATAA 2551 CTTTCAAAG AATATTTTA TCAGAGAATAA TAACATCCC CTCTCCCT 2651 ATACACCAAG AATATTCAAT AAAAATATTTC 2651 ATACACCAAG AATATTCAAT AAAAATATTC 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGT TATTGACTAC CTAATAATAC 2751 GCCCTGTCAT TACTAATCA AAAAATATTC 2761 AACTAGCTGA CCTCGGTCGT TATTGACTAC CTAATAATGCA 2751 GCCCTGTCAT TACTAATCA AAAAATATTCT 2761 AACTAGCTGA CCTCGGTCGT TATTGACTAC CTAATAATAC 2761 AACTAGCTGA CATTAATGA AAAAATATTCT 2761 AACAAAATTCC TACTTAATG AAACATGGT TATTTTTCTT 2761 AACAAAATTCC TACTTAATGAAAAAAATATGATAAAAAAAAAA | 1601 | | | | | |
| 1751 TTTGTTGAGG ATGCCGGTCA GCATATTTGT CAGCCAAGCT TCGAGTAGCT 1801 TCTTCACCGC TGGTGGCGC TCTTCCGTTG TGGACGTGA AGCTCCTTTA 1851 CCGCGGGATG TTGCGATACT GCTGAGGG AGGGGTGATC CACTTCGTCG 1901 GGGAGGGTG TTAGGCGTTA TGCCTTCGCC TCTCATTTCG GAGACCTCAT 1951 TGATGGTGTT TAAGAGGTTG GTAGTGAGAT TGGCCACTGC CTTCATCCTT 2001 TCTTCTCCCT TACCTGCCAT GTCAGATCTG GTGGTACAAG GAAGTAGGAG 2051 CTTCTCTCT TCTTTTTTGT GAATTGTGCC AGTTATAGAT CTAAAAGAAA 2101 CTAAAGTTTT AACTAGACTA TCCTCACAGA CGGCGCCAAA TTGTTTGACC 2151 AAAAAAATATA GACTTTTGAT TAAATTAATT AATATTGTAT GACAAAGGAT 2201 TAAACCTAGT TAATGATA AACTTCAGAT CTATAATCAA TTAACAGCAA 2251 TCACGGTCAT AGCAGCGTTG AGGAGAGATT AAATGTGATG TYCATTCAAT 2301 ATTTCAAGAT CATTAATGAT AGGGGAATAT CAACCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGT 2401 GGATGATTCT TCTTTTTGAC AATGATAAA GTATGGAATA ATAACGATAA 2551 TTGGGACCCT TCTCGGATCT AATGAAAAAA GTATGGAATA GTAGATAATC 2501 GAATCTCTTT AGAAAGAAAAAA GTATGGAATA GTAGATAATC 2501 ATCTCTTTT AGAAAGATT TCAGAGAATAA TTACTAGAATC 2501 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTCAATC 2601 ATCTCTTTT AGAAAGAAAAAAA GTATGGAATAA CTACACCCC 2651 ATACACCAAG AATATTTTAA TCAGAGAATAA TTACATCCCC CTCTCTCCCT 2651 ATACACCAAG AATATTTTAA TCAGAGAATAA TTTTGACTCAC CTCAAAAGTAC 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC CTAAAAGTAC 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCAAAAAATTC 2701 AACTAGCTGT TAGCACCTCGA CCTCGGTCGY TATTGACTAC CTAAAAGTAC 2701 AACTAGCTGT TAGCACCTCGA CCTCGGTCGY TATTGACTAC CAATAAATATC 2701 AACTAGCTGT TAGCACAGA TAACTTGACAC AATATTTTATATC AACACCAGA TTTTTTTCTT 2701 AACTAGTCA AATATTCAAT AAAACAAATTC TTCAAAAAAA AACATGGCTC TAAAAAAATATC 2701 AACTAGCTGA TAACACCAC AATAATATTCT TTTTTATATAGTGAA AACATAGTGA TTTTTTTTCTT 2701 AACTAGTCA AAAAAATATCT TAGCACAAC AATATTTTTTTTTT | 1651 | | | | | |
| 1801TCTTCACCGCTGGTGGCGCCTCTTCCGTTGTGGACGTGGAAGCTCCTTTA1851CCGCGGGATGTTGCGATACTGCTGTGAGGGAGGGGTGATCCACTTCGTCG1901GGGAGAGGTGTTAGGCGTTATGCCTTCGCCTTCTATTTCGGAGACCTCAT1951TGATGGTGTTTAAGAGGTTGGTAGTGAGATTGGCCACTGCCTTCATCCTT2001TCTTCTCCCTTACCTGCCATGTCAGATCTGGGTGTACAAGGAAGTAGGAG2051CTAAAGTTTTAACTAGACTATCCTCACAGACGGCGCCAAACTAAAAGAA2101CTAAAAGTATAGACTTTTGATTAAATTAATTAATATTGTATGACAAAGGAT2201TAAACCTAGTTAATGATAATAACTTCAGATCTATAATCAATTAACAGCAA2251TCACGGTCATAGCAGCGTTGAGGAGAAGATTAATGTGATGTYCATTCAAT2301ATTTCAAGATCATTAATGATAGGGAATGATTCACCCAATATTTCATTCAAT2401GGATGATTCTTCTTTTTGACAATGATGAATCACCCAATATTGAATGAGTA2451TTGGGACCCTTCTCGGATCTAATGAGAAAAGTATGGAATATACTAGAATA2501GAATCTCTTTAGAAAGGTAGTTAATTCATCCCTCTCTCCCT2551CTTTTCAAAGAATATTTTATTCAGGAGAATATTACATCACCCTCTCTCCCT2551CTTTCATGTAAATATTTTATTCAGGAGAATATTACATCACCCTCTCTCCCT2651ATACACCAAGAATATTTAATAAAAAATATTTTTTTGAATATCATCACTTCCTCATCCCT2751GCCCTGTCATTAGCACTCGACCTCGGTCGYTATTGACTACCCTCTCTCCCT2801CTTCATGTCAACTCA | 1701 | | | | | |
| 1851 CCGCGGGATG TTGCGATACT GCTGTGAGGG AGGGGTGATC CACTTCGTCG 1901 GGGAGAGGTG TTAGGCGTTA TGCCTTCGCC TTCTATTTCG GAGACCTCAT 1951 TGATGGTGTT TAAGAGGTTG GTAGTGAGAT TGGCCACTGC CTTCATCCTT 2001 TCTTCTCCCT TACCTGCCAT GTCAGATCTG GGTGTACAAG GAAGTAGGAG 2051 CTTCTTCTTT TCTTTTTTGT GAATTGTGCC AGTTATAGAT CTAAAAGAAA 2101 CTAAAGTTTT AACTAGACTA TCCTCACAGA CGGCGCCAAA TTGTTTGACC 2151 AAAAAAATATA GACTTTGAT TAAAATAAAT AACTTCAGAT CTATAATCAA TTAACAGCAA 2251 TCACGGTCAT AGCAGCGTTG AGAGAAGATT AAATGTGATG TYCATTCAAT 2301 ATTCAAGAT CATTAATGAT AGGGGAATAT CAACCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGGT 2401 GGATGATTCT TCTTTTTGAC AATGATGAAT GATGGGCAAA TACTAGAATG 2401 GGATGATTCT TCTTCGATC AATGAAAAAA GTAGGATAAA TCAAGAATAG 2551 CTTTTCAAAG AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2561 ATCCCTTTT AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2571 GCCCTGTCAT TAGCACCAG CCTCGGTCGY TATTGACTAC CTAAAAGTAC 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCAGATACTG 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACCAAT TCGGTTACGA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACCAAT CCAATAATATC 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACCAAT CCAATAATATC 2701 AACTAGCTAC TAGCACTCGA CCTCGGTCGY TATTGACCAAT CCAATAATATC 2701 AACTAGCTGT TAGCACATAT TTACTAGAGAA ATATCGTTAGA 2701 AACTAGCTGT TAGCACATTA AAAATATTTT TTTGACCCATA CAATAATATC 2701 AACTAGCTGA TTTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2701 AACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2701 AACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2701 ACTGTTATAG AAAGATCTGA ATTTATTTTTTTTCTT 2701 AACAAAATTGC TTCCAAAGAA AACATGGCTC TTATATGATAAA ATATCGTTAG | | TTTGTTGAGG | | | | |
| 1901 GGGAGAGGTG TTAGGCGTTA TGCCTTCGCC TTCTATTTCG GAGACCTCAT 1951 TGATGGTGTT TAAGAGGTTG GTAGTGAGAT TGGCCACTGC CTTCATCCTT 2001 TCTTCTCCCT TACCTGCCAT GTCAGATCTG GGTGTACAAG GAAGTAGGAG 2051 CTTCTCTTCT TCTTTTTTGT GAATTGTGCC AGTTATAGAT CTAAAAGAAA 2101 CTAAAGTTTT AACTAGACTA TCCTCACAGA CGGCGCCAAA TTGTTTGACC 2151 AAAAAATATA GACTTTTGAT TAAATTAATT AATATTGAT GACAAAGGAT 2251 TCACGGTCAT AGCAGCAGTTG AGAGAAGATT CTATAATCAA TTAACGCAA 2351 ATGGCATTAA AGCAGCGTTG AGGGAATAT CAAGCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CAAGCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CAAGCAATAA ATAACGATAA 2451 TTGGGACCCT TCTCGGATCT AATGAAAAA GTAATGAGGT 2451 TTGGGACCCT TCTCGGATCT AATGAAAAAA GTAAGGATA GTAGAATATC 2551 CTTTTCAAAG AATATTTTA TCAGAGAATA TTAACACCAC AGAAAGTCTG 2551 CTTTTCAAAG AATATTTTA TCAGAGAATA TTAACACCC CTCTCTCCCT 2601 ATCTCTTTT CTTATATAT GGGACATTCC TCAATCAAT CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTT TTACATCCC CTCTCTCCCT 2651 ATACACCAAG AATATTCAAT AAAATATTT TTTGAATATT CTAAAAGTAC 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TACTAATCG ACCTCGATTA TACCACCATA TACGATACTG 2851 CTTCATGTCA AAAGACAGATT TTACAACTAC CAAAAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAAGAA ATACGTTAG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAAGAA ATACGTTAG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAAGAA ATACGTTAG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATATAGAA ATACGTTAG 2851 ACTGTTATAG AAAGACAACC ATGAATAGAA ATACGTTAGT 2851 TTCTTTTCAT AAAGACAACC ATGAATAGAA AAGGCCTTAGTT | 1801 | | | | | |
| TGATGGTGTT TAAGAGGTTG GTAGTGAGAT TGGCCACTGC CTTCATCCTT TACTTCCCT TACCTGCCAT GTCAGATCTG GGTGTACAAG GAAGTAGGAG TCTTCTCTCTT TCTTTTTTTT GAATTGTGCC AGTTATAGAT CTAAAAGAAA TCTCACAGA CGGCGCCAAA TTGTTTGACC AAAAAAATATA GACTTTGAT TAAATTAATT AATATTGATA GACAAAGGAT TAAACCTAGT TAATGATAAT AACTTCAGAT CTATAATCAA TTAACAGCAA ATTTCAAGAT AGCAGCGTTG AGAGAAGATT CAAGCAATAA ATAACGATAA ATTTCAAGAT AGTAAATAAG GAGAATGATT CAAGCAATAA ATAACGATAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGT CATTATTTGAC AATGATGATA GATAGGAATAA ATAACGATAA ATAACGATAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGGT CTTTTTCAAAG AATATTTTTA TCAGAGAATAA GTAAGATATC AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG CTTTTCAAAG AATATTCAAT AAAATATTT TTACATCCC CTCTCTCCTT CTATTTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC CTATTATAAA AAAATATTTT TTTGAATATT CTAAAAGTAC CTATTATAAA AAAATATTTT TTTGAATATT CTATTATAAA TTACACCAAG AATATTCAAT AAAATATTTT TTTGAATATT CTATTATAAA TTACACCAAG AATATTCAAT AAAATATTTT TTTGAATATT CTATTATAAA TTACACCATG TTACTAATCG ACCTCGATCA TATTGACTAC TCAGATACTG CTATTATAAAA AAAATATTTT TTTGAATATT CTATTATAAA TTACACCATA TACGATACTG TTACTAATCG ACCTCGATTA TTATTAAAATCTTTTTTTATACACCATA CAAAAATATG AAAAAATTGC TTCCAAAAGAA AACATGGCTC TTATTATAGAA ATATCGTTAG AATTCTTTTCTT AAAGGAG TAAAAGCAACC ATGAATAGAA AAGGCTTTAGTT | | | | | | |
| 2001TCTTCTCCCTTACCTGCCATGTCAGATCTGGGTGTACAAGGAAGTAGGAG2051CTTCTCTCTTCTTTTTTGTGAATTGTGCCAGTTATAGATCTAAAAGAAA2101CTAAAGTTTTAACTAGACTATCCTCACAGACGGCGCCAAATTGTTTGACC2151AAAAAATATAGACTTTTGATTAAATTAATTAATATTGTATGACAAAGGAT2201TAAACCTAGTTAATGATAATAACTTCAGATCTATAATCAATTAACAGCAA2251TCACGGTCATAGCAGCGTTGAGAGAAGATTAAATGTGATGTYCATTCAAT2301ATTTCAAGATCATTAATGATAGGGGAATATCAAGCAATAAATAACGATAA2351ATGGCATTAAAGTAAATAAGGAGAATGATTCACCCAATATTGAATGAGGT2401GGATGATTCTTCTTTTTGACAATGATGAATGATGGGCAAATACTAGAATG2451TTGGGACCCTTCTCGGATCTAATGAAAAAAAGTATGGAATAGTAGATAATC2501GAATCTCTTTAGAAAGGTAGTGATTGTCTTTTATCTAGAGAGAAAGTCTG2551CTTTTCAAAGAATATTTATATCAGAGAATATTACAATCACCCTCTCTCCCT2601ATCTCTTTTTCTATTTATATGGGACATTCCTCAATCAATCCTATAAAGA2751GCCTGTCATTAGCACTCGACCTCGGTCGYTATTGACTACTACGATACTG2801CTTCATGTCAAATCTTAATGAACACGGTTTAGCACTTCTAGCACCATACAÁTAATATG2801ACTATATAGAAAAATTGCTTCCAAAGAAAACATGGCTCTTATAGGAAAATATCGTTAG2901ACTGTTATAGAAAGATCTGAATTATTTTATAAGAATAGGATTTTTTTCTT2951 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | | |
| 2051 CTTCTCTCT TCTTTTTGT GAATTGTGCC AGTTATAGAT CTAAAAGAAA 2101 CTAAAGTTTT AACTAGACTA TCCTCACAGA CGGCGCCAAA TTGTTTGACC 2151 AAAAAATATA GACTTTTGAT TAAATTAATT AATATTGTAT GACAAAGGAT 2201 TAAACCTAGT TAATGATAAT AACTTCAGAT CTATAATCAA TTAACAGCAA 2251 TCACGGTCAT AGCAGCGTTG AGAGAAGATT AAATGTGATG TYCATTCAAT 2301 ATTTCAAGAT CATTAATGAT AGGGGAATAT CAACCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGGT 2401 GGATGATTCT TCTTTTTGAC AATGATAAAA GATGGGCAAA TACTAGAATG 2451 TTGGGACCCT TCTCGGATCT AATGAAAAAA GTATGGAATA GTAGATAATC 2501 GAATCTCTTT AGAAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2551 CTTTTCAAAG AATATTTTA TCAGAGAATA TTACATCCCC CTCTCTCCCT 2601 ATCTCTTTTT CTATTTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2601 AACTAGCTGT AATATTCAAT AAAATATTTT TTTGAATATT CTATTAAAA 2751 GCCCTGTCAT TACCAACGA CCTCGGTCGY TATTGACTAC TCAGTACGA 2751 GCCCTGTCAT TACCAATCA AAAATATTTT TTTGAATATT CTATTAAAA 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2851 TTCTTTTCAT ATCTAAGGAG TTATATTTAT AAGAATAGAA AAGGCTTAGT | 1951 | | | | | |
| 2101 CTAAAGTTT AACTAGACTA TCCTCACAGA CGGCGCCAAA TTGTTTGACC 2151 AAAAAATATA GACTTTTGAT TAAATTAATT AATATTGTAT GACAAAGGAT 2201 TAAACCTAGT TAATGATAAT AACTTCAGAT CTATAATCAA TTAACAGCAA 2251 TCACGGTCAT AGCAGCGTTG AGAGAAGATT AAATGTGATG TYCATTCAAT 2301 ATTTCAAGAT CATTAATGAT AGGGGAATAT CAAGCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGGT 2401 GGATGATTCT TCTTTTTGAC AATGATAAAA GTATGGGCAAA TACTAGAATG 2451 TTGGGACCCT TCTCGGATCT AATGAAAAAA GTATGGAATA GTAGATAATC 2501 GAATCTCTTT AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2551 CTTTTCAAAG AATATTTTTA TCAGAGAATA TTACATCCCC CTCTCTCCCT 2601 ATCTCTTTT CTATTTAATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTTT TTTGAATATT CTATTATAAA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTC TACCATACGA 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2851 ACAAAATTGC AAAGATCTGA ATTTATTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTTCAT ATCAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| 2151 AAAAAATATA GACTTTGAT TAAATTAATT AATATTGTAT GACAAAGGAT 2201 TAAACCTAGT TAATGATAAT AACTTCAGAT CTATAATCAA TTAACAGCAA 2251 TCACGGTCAT AGCAGCGTTG AGAGAAGATT AAATGTGATG TYCATTCAAT 2301 ATTTCAAGAT CATTAATGAT AGGGGAATAT CAAGCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGGT 2401 GGATGATTCT TCTTTTTGAC AATGATGAAT GATGGGCAAA TACTAGAATG 2451 TTGGGACCCT TCTCGGATCT AATGAAAAAA GTATGGAATA GTAGAATATC 2501 GAATCTCTTT AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2551 CTTTTCAAAG AATATTTTA TCAGAGAATA TTACATCCCC CTCTCTCCCT 2601 ATCTCTTTT CTATTTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTTT TTTGAATAAT CTATTATAAA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TCCAAAGAA AACATGGCTC TTATAGGGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| 2201TAAACCTAGTTAATGATAATAACTTCAGATCTATAATCAATTAACAGCAA2251TCACGGTCATAGCAGCGTTGAGAGAAGATTAAATGTGATGTYCATTCAAT2301ATTTCAAGATCATTAATGATAGGGGAATATCAAGCAATAAATAACGATAA2351ATGGCATTAAAGTAAATAAGGAGAATGATTCACCCAATATTGAATGAGGT2401GGATGATTCTTCTTTTTGACAATGATGAATGATGGGCAAATACTAGAATG2451TTGGGACCCTTCTCGGATCTAATGAAAAAAGTATGGAATAGTAGATAATC2501GAATCTCTTTAGAAAGGTAGTGATTGTCTTTTATCTAGAGAGAAAGTCTG2551CTTTTCAAAGAATATTTTATCAGAGAATATTACATCCCCCTCTCTCCCT2601ATCTCTTTTCTATTTATATGGGACATTCCTCAATCAATCCTAAAAGTAC2651AACACCAAGAATATTCAATAAAATATTTTTTTGAATATTCTATTATAAA2701AACTAGCTGTTAGCACTCGACCTCGGTCGYTATTGACTACTCGGTTACGA2751GCCCTGTCATTTACTAATCGACCTCGATTACATCACTTTCTACGATACTG2801CTTCATGTCAAATCTTAATGAAAGCAGATTTTGACCCATACAATAATATG2851ACAAAATTGCTTCCAAAGAAAACATGGCTCTTATAGTGAAATATCGTTAG2901ACTGTTATAGAAAGATCTGAATTTATTTATAAGAATAGTGTTTTTTTTCTT2951TTCTTTTCATATCTAAGGAGTAAAGCAACCATGAATAGAAAAGGCTTAGT | | CTAAAGTTTT | AACTAGACTA | TCCTCACAGA | CGGCGCCAAA | TTGTTTGACC |
| 2251 TCACGGTCAT AGCAGCGTTG AGAGAAGATT AAATGTGATG TYCATTCAAT 2301 ATTTCAAGAT CATTAATGAT AGGGGAATAT CAAGCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGGT 2401 GGATGATTCT TCTTTTTGAC AATGATGAAT GATGGGCAAA TACTAGAATG 2451 TTGGGACCCT TCTCGGATCT AATGAAAAAA GTATGGAATA GTAGAATAC 2501 GAATCTCTTT AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2551 CTTTTCAAAG AATATTTTAT TCAGAGAATA TTACATCCCC CTCTCTCCCT 2601 ATCTCTTTT CTATTTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTTT TTTGAATAAT CTATTATAAA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | AAAAAATATA | GACTTTTGAT | TAAATTAAAT | AATATTGTAT | GACAAAGGAT |
| 2301 ATTTCAAGAT CATTAATGAT AGGGGAATAT CAAGCAATAA ATAACGATAA 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGGT 2401 GGATGATTCT TCTTTTTGAC AATGATGAAT GATGGGCAAA TACTAGAATG 2451 TTGGGACCCT TCTCGGATCT AATGAAAAAA GTATGGAATA GTAGAATATC 2501 GAATCTCTTT AGGAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2551 CTTTTCAAAG AATATTTTA TCAGAGAATA TTACATCCCC CTCTCTCCCT 2601 ATCTCTTTT CTATTTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTTT TTTGAATAAT CTATTATAAA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTA TTTTTTTCTT 2951 TTCTTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| 2351 ATGGCATTAA AGTAAATAAG GAGAATGATT CACCCAATAT TGAATGAGGT 2401 GGATGATTCT TCTTTTTGAC AATGATGAAT GATGGCAAA TACTAGAATG 2451 TTGGGACCCT TCTCGGATCT AATGAAAAAA GTATGGAATA GTAGAATATC 2501 GAATCTCTTT AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2551 CTTTTCAAAG AATATTTTA TCAGAGAATA TTACATCCCC CTCTCTCCCT 2601 ATCTCTTTT CTATTTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTTT TTTGAATATT CTATTATAAA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | TCACGGTCAT | AGCAGCGTTG | AGAGAAGA'I'I' | AAATGTGATG | TYCATTCAAT |
| 2401 GGATGATTCT TCTTTTGAC AATGATGAAT GATGGGCAAA TACTAGAATG 2451 TTGGGACCCT TCTCGGATCT AATGAAAAAA GTATGGAATA GTAGAATAC 2501 GAATCTCTTT AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2551 CTTTTCAAAG AATATTTTTA TCAGAGAATA TTACATCCCC CTCTCTCCCT 2601 ATCTCTTTT CTATTTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTTT TTTGAATATT CTATTATAAA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | ATTICAAGAT | CATTAATGAT | AGGGGAATAT | CAAGCAATAA | ATAACGATAA |
| TTGGGACCT TCTCGGATCT AATGAAAAA GTATGGAATA GTAGATAATC GAATCTCTTT AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG TTTTCAAAG AATATTTTTA TCAGAGAATA TTACATCCCC CTCTCTCCCT CTATTTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC AATATTCAAT AAAATATTTT TTTGAATATT CTATTATAAA ACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA CTTCATGTCA TACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT TTCTTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| 2501 GAATCTCTTT AGAAAGGTAG TGATTGTCTT TTATCTAGAG AGAAAGTCTG 2551 CTTTTCAAAG AATATTTTA TCAGAGAATA TTACATCCCC CTCTCTCCT 2601 ATCTCTTTT CTATTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTTT TTTGAATATT CTATTATAAA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| 2551 CTTTCAAAG AATATTTTA TCAGAGAATA TTACATCCC CTCTCCCT 2601 ATCTCTTTT CTATTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTT TTTGAATATT CTATTATAAA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| 2601 ATCTCTTTT CTATTATAT GGGACATTCC TCAATCAATC CTAAAAGTAC 2651 ATACACCAAG AATATTCAAT AAAATATTT TTTGAATATT CTATTATAAA 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| ATACACCAAG AATATTCAAT AAAATATTT TTTGAATATT CTATTATAAA CTOOL AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA CCTCGATTA CATCACTTTC TACGATACTG CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG AAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG AAGATATTG AAGAATAGTG TTTTTTTCTT AAGAATAGTG TTTTTTTCTT AAGAATAGAA AAGGCTTAGT ATCTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| 2701 AACTAGCTGT TAGCACTCGA CCTCGGTCGY TATTGACTAC TCGGTTACGA 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| 2751 GCCCTGTCAT TTACTAATCG ACCTCGATTA CATCACTTTC TACGATACTG 2801 CTTCATGTCA AATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTTCTT 2951 TTCTTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | | | | | |
| 2801 CTTCATGTCA FATCTTAATG AAAGCAGATT TTGACCCATA CAATAATATG 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG FAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTCTT 2951 TTCTTTCAT FTCTAAGGAG TAAAGCAACC ATGAFTAGAA AAGGCTTAGT | | | | | | |
| 2851 ACAAAATTGC TTCCAAAGAA AACATGGCTC TTATAGTGAA ATATCGTTAG 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTCTT 2951 TTCTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | CTTCIGICAL | LATCIMATEG | AAACCACATIA | THENCHETTIE | TACGATACTG |
| 2901 ACTGTTATAG AAAGATCTGA ATTTATTTAT AAGAATAGTG TTTTTTCTT 2951 TTCTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | CITCATOTCA | TTCLIANIG | AACATGCCTC | TIGACCCATA | CUVINVIVIO |
| 2951 TTCTTTCAT ATCTAAGGAG TAAAGCAACC ATGAATAGAA AAGGCTTAGT | | ACTGTTATAG | AAAGATCTGA | TATTATTTA | AAGAATAGTGAA | TATATA COLLAG |
| 3001 AACTATATAT CAAAGGAATG GTGTTTTTC TTTAAATATG GATAAAAATT | | TTCTTTTCAT | ATCTAAGGAG | TAAAGCAACC | ATGALTAGIO | AACCCTTACT |
| · · · · · · · · · · · · · · · · · · · | - | AACTATATAT | CAAAGGAATG | GTGTTTTTTC | TTTALATTT | GATAAAAATT |
| | | | | | | |

Fig. 5B

| 3051 | TGTGAATATA | GAAGATTAGA | TCAATTAACA | AAGGTTATGG | TGG <u>AGTGGTA</u> |
|------|------------|-------------------|--------------------|--------------------|--------------------|
| 3101 | | GACCTATGTG | | | |
| 3151 | TCCGGTAAAG | ATCGATCAAA | | | GTAATGGCCA |
| 3201 | AAAACTGACC | ALAACGCGAT | CATTTACGTG | TGAACGGTAT | TTTTATGGTC |
| 3251 | GGAAAGGAAT | ACCGACCAAA | GTTGGTCGGA | AATTACCGAC | CAACTTTGGT |
| 3301 | CGGTCAATTA | AATTCAAAAA | | | GACCAAAGTT |
| 3351 | GATCGGTATT | TTAATTATGT | | | GGGAATCGAA |
| 3401 | CCGGGGTCTG | TACTATGGCA | | | ACCATTGGTT |
| 3451 | CATTTTGTTT | TAAGACTGTC | TTTTATTTGA | TTTATACTCT | TAATTATAT |
| 3501 | TTTTGCACGA | ALLTAACCGA | CCAAAGTTGG | TCGATTTTAT | TAAAAAGTAA |
| 3551 | AATTACTTAC | CALLAGTTGGT | CGATTTTTTT | AAATGA TCCG | CCGAATTAAC |
| 3601 | CGACCAATTT | TGGTAGGTTT | TTTTAATATT | AATTTTTATT | TTAATTTAAT |
| 3651 | GAAAAACTAA | CCLAAGTTAG | TCGGTTTCTT | GAAACATAAA | TTTCGCGGGA |
| 3701 | CTCAAAAATA | GTTTCCCGCA | TTTTTGCGCC | AAAGAAAACC | GACCAAAGTT |
| 3751 | GGTCGGTTTC | GTAAAAAAA | ATTTAAAA | TATATAAAA | TTTAAAAAAAC |
| 3801 | CGACCAACTT | TAGTCGGTTT | TTTGGTCGAT | TTTTTGACCG | ACCAAAGTTG |
| 3851 | GTCGGTCGAC | CTTGGTCGGT | | | |
| 3901 | CTGTAAGCTT | CGGGAGAAAT | TTTGTATATG | <u>TATA</u> TGTGTA | TATCCTTA <u>AA</u> |
| 3951 | ATGATTAATT | TALAGAACGT | | | |
| 4001 | CACTAGATGA | GC=GAATAAC | GTGTTCTCGT | CGCGTAAAAA | TACTTGGATC |
| 4051 | CGCCTATGAT | GGTAAGTACT | | | |
| 4101 | GAGCTCCAGA | TATAAACTAT | AGACTCGTCT | TTATAGCACC | TTTTAATAAG |
| 4151 | ACTATGACTT | CATCTGATTT | CTCTATAAAT | ACTCCTCAAG | CTTTCGGTTC |
| 4201 | TTCTCCATTG | TTCAGTTTCT | | | AAAACAAAAC |
| 4251 | AAGAAGAAGA | AGAAGAAGAA | <u>AAATAAA</u> GAG | TTTCTGTCAA | ATTAAGTCCA |
| 4301 | ATAGGGAAAA | | | | |

Expression of NIN88-promotor GUS fusion in transgenic tobaccoplants

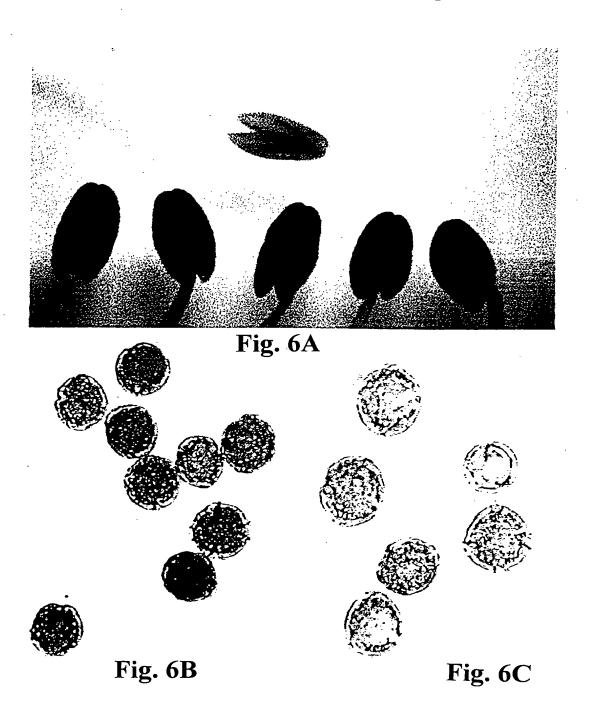
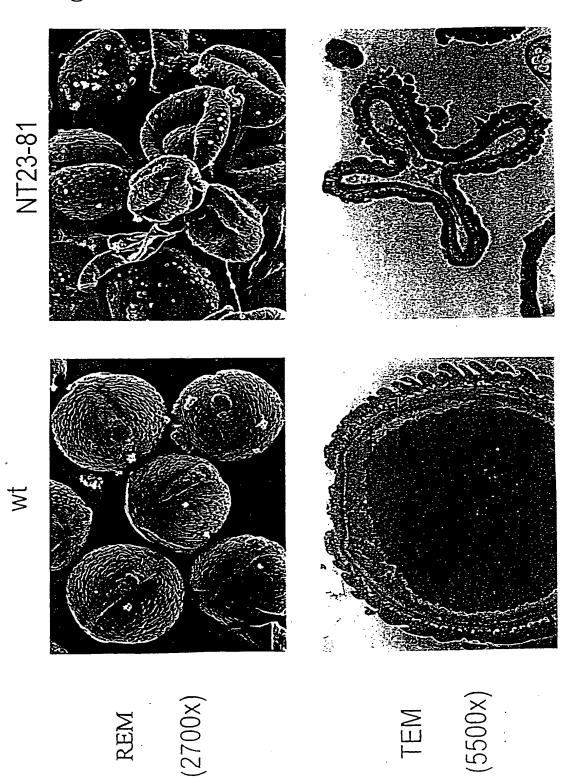
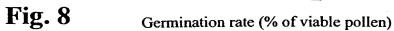
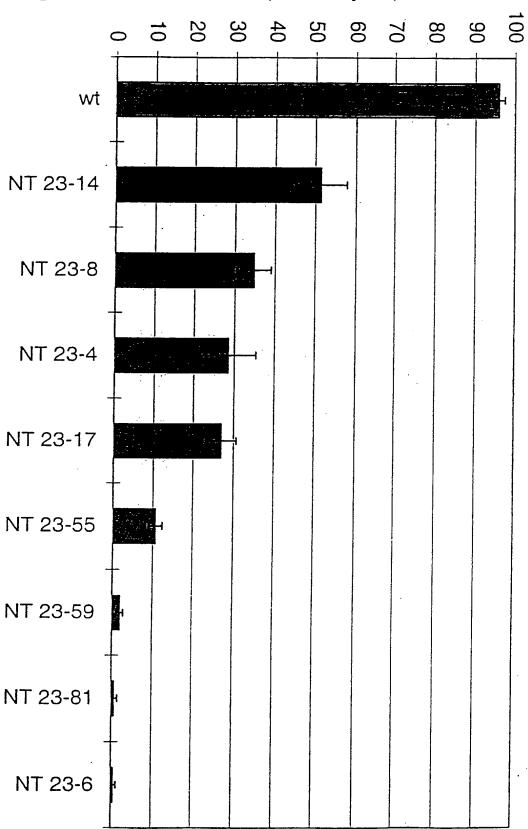


Fig. 7



10/22

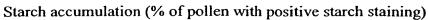


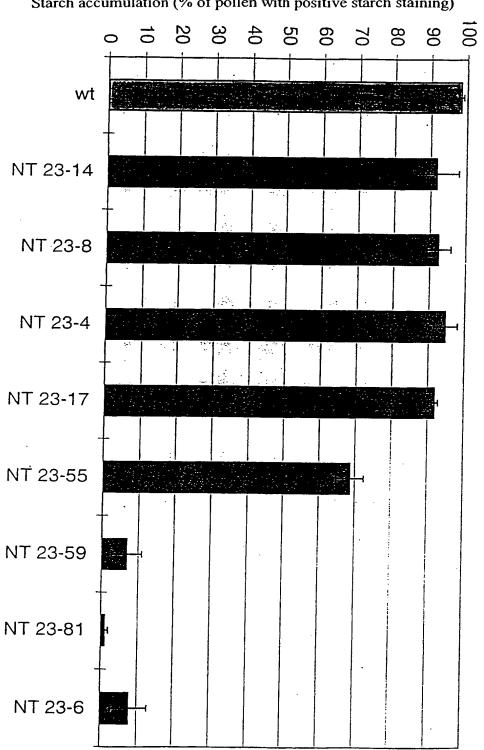


Germination rate

Fig. 9

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Starch accumulation

Fig. 10

VT23-6









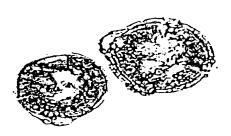








∭



20 µm

Fig. 11

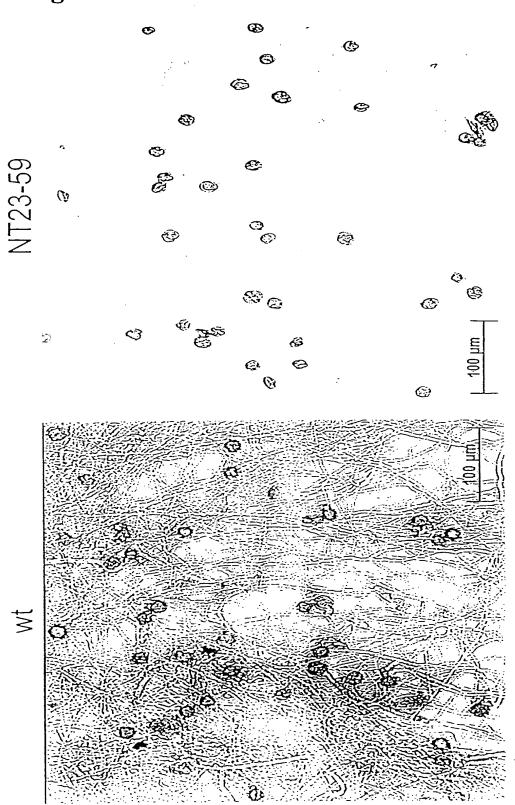
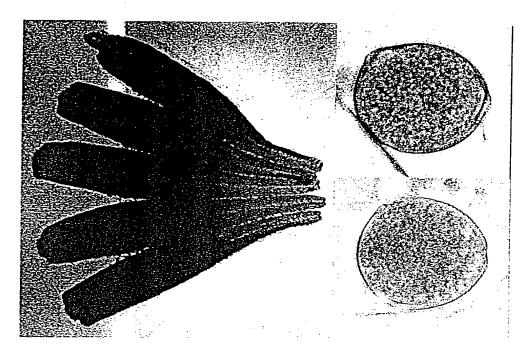
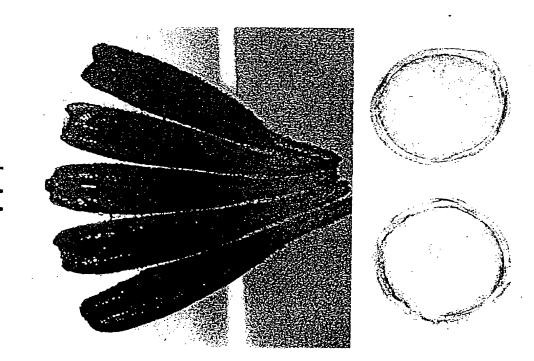


Fig. 12

LP1-8





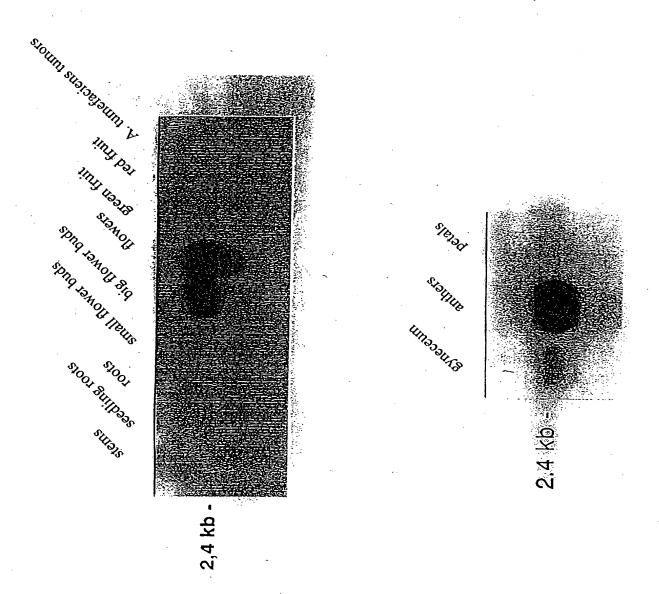


Fig. 13A

Fig. 13B

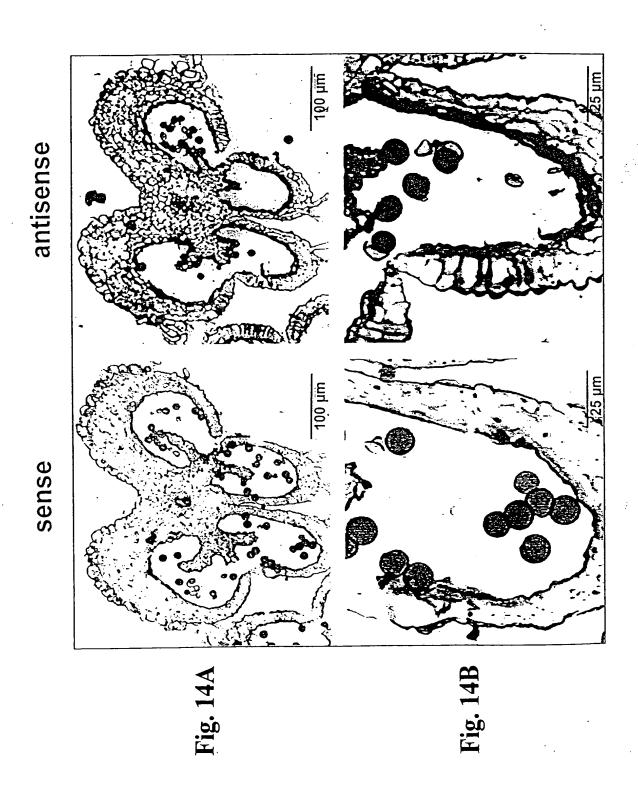


Fig. 15A

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Genomic sequence of NIN88

| 1 | ATGGAGCTGT TTAGAAAAAG CTCTTTTCAT TGTGCTTTGC CAGTTTTCAT |
|------|---|
| 51 | |
| 101 | • |
| 151 | |
| 201 | • |
| 251 | |
| 301 | |
| 351 | ACAAAGTCAA TTCCATAACT AGGGCTCGAA CCCGAGACTT CCGATTAAAA |
| 401 | ATGAAGGAGT ACTTAACACT TATTCTGTAA CATTAAACAA TAGACATCCT |
| 451 | ACTCCTCTAA ACTCATTTGT ATTTTTAAAA TATCTATTTT ACCCTCGATC |
| 501 | TTATTAGCCT TCATCTACTT TTTTTTTTTT TACTTTTTTA ATATCACAAT |
| 551 | ATTTTCTTAT TCTATGTTAT GAATTTACCT ATAGTGAACA TAAAATTTAA |
| 601 | AAAAGGTGAA AAACAATAAT CAATCATATA CTTATTGAAG TTAGAATAAT |
| 651 | GAAACAAATG GGCGCAATTA AAATATTAGA ATAACAGATC TTATTAATAT |
| 701 | СААТСАААТА АААТТТАСТТ САСТААТАТА ААААААТААТ ТАААСАТАСА |
| 751 | GGTAGATTTT CTAAGAAATT CCTAAAAGAT TATATATTTA TAACTTAGAA |
| 801 | AATATTTTGT TAATGAAAAT AAATATTCAA AGATATATAC AGAACAACAA |
| 851 | CAACAACCCG ACCTTACCCC TACCCTGGGG TAGAGAGACT GTTTCCGATA |
| 901 | GACCCTCGGC TCCCTCCCTC CAAGAACTCC CCACCTTGCC CTTGGGATGA |
| 951 | CTCGAACTCA CAACCTCTTA GTTGGAAGTG GATGGTGCTT ACCACTAGAG |
| 1001 | CAACCCGCTC TTGTCCGAAG ATATATACAG AAACATGTAA TAAAGAATAA |
| 1051 | AAGAGAAAGT AAAACTTAAA TATATAGATA ATATTAATGT AACGATAAAA |
| 1101 | AAGAGTAACG ATAATTGTTT TTGCAAATTC ATAAAGGTAT TATTCTAGTT |
| 1151 | AAATTTTATT GAGTTTTAAT TATATAATTT ATCATAAGAT ATTAAAATTG |
| 1201 | СТААААТАСТ ТАСССТААТС АТААААТАСА ТСТТАТАТАА ТАТТАААААА |
| 1251 | AATAGAGGAG AAATTGAAAA TGTCAAGGGT AAAATAGAAA ATGCATATGA |
| 1301 | TAGGAGGAGC GAAATATATA TTATTTAGTG TTGGAAGAGT GATTTGATTT |
| 1351 | TTAAGATAAA ATTAGGGGAT GAAAATGATT TTTACACTTT AATAGATAGA |
| 1401 | TCCTACTGAA ACACGTGTGA GTTCCAAAAG CAAAAAACGA AAAAGGAACC |
| 1451 | AGCTCCCTAA TAATGAGTAC TTATTATACA AGTAAATACA ATTAGAGGAC |
| 1501 | ACTAATTGCA ACCCCCTACT TGGGAACTGT CGGCCTATTG CTTTAATTAC |
| 1551 | TTATACTCTC ACTCCGTTCA CTTTTACTTA TCCAATATTC TAAGTGACAT |
| 1601 | TTGGACATAA GAATTGTAAA ATTCCAAAAT AGGAAAAAA AATACAAGTG |
| 1651 | AAAATGTTAT TTGAAATTTA GAGTTACGTT TGGACATGAA TATAATTTTG |
| 1701 | GGTTGTTTTT AAAGTTTTGT GAGTGATTTG AGTGAAAAATT TTGAAAAACA |
| 1751 | GTTTTTTGAA GTTTTTCAAA TTTTCGAAAA TTTTCAAAAT GCATCTTCAA |
| 1801 | ATGAAAATTG AAAATTTTAT GAACAAACGC TGATTTCGAA AAAAAAGTGA |
| 1851 | TTTTTTTGTG GAAAAAAGAA AAAAATTTCT TATGTCCAAA CGGGCTCTAA |
| 1901 | AAATAGATTT TCACTTTTAC TTGTCACTTT TCGCATATCA AGAGAAGACA |
| 1951 | ATTTCTTTT TTCTGTTATA CTCATAGTAT TAATTACTCA TTTCAAATCA |

Fig. 15B

| 2001 | TTTTTTCAAA | TCCACTAAAA | ATATGTATCA | ATTAATATGG | GTATTATGGT |
|------|------------|--------------------|--------------------------------|--------------------|--------------------|
| 2051 | AAATTATGCA | CTTCATTTAT | TATTTCTTAA | GGAGTGTTCA | AAGTCCGTAG |
| 2101 | TAGACAAGTA | AAAGTGAATG | GAGAGAGTAA | ${\tt TAAATTACAC}$ | ${\tt CTACTTTCTT}$ |
| 2151 | GGAAATACCA | ${\tt GTTGAGACAT}$ | ACGTAGAACT | ${\tt TTTGCTAATT}$ | ${\tt TTTTCTTATT}$ |
| 2201 | TTTTCTTAAT | TATATTATAT | TTGTGTGTGA | TATGGGCAGA | AGGGGTTGGT |
| 2251 | AAGAAGGATC | TTGTCCCCAT | CAGCAACTTA | ${\tt CAATATTTTA}$ | GGGAAGACAA |
| 2301 | ATAATAATTT | TCTGCATTTC | ${\tt CTAAATTTTT}$ | ${\tt GTAATTTCAC}$ | ${\tt TTTTCATTTG}$ |
| 2351 | TTTATTATTT | GATTATTCAT | CAATATTAAA | ${\tt TTATGCAGAT}$ | TTAGTACTCA |
| 2401 | CATTCAATTG | TTTATTTACA | $\mathbf{ATTTTTTTT}\mathbf{A}$ | ATTTTTTTCT | ${\bf TTATGGTCTT}$ |
| 2451 | TCTCGATGCC | TTCAAACATA | CAAATAGACC | CCAATGGTGA | GTCAGAAATT |
| 2501 | TTATCTTCTT | TTTATATATA | ${\tt TAATTTAATC}$ | ACCAATTATT | CATTTATGAT |
| 2551 | ACTGATTTTT | CATGTAATTA | CCAACAGCAC | CAATGTATTA | CAATGGAGTC |
| 2601 | TATCATCTAT | TCTACCAGTA | CAATCCAAAA | GGATCAACAA | TGAACAACAT |
| 2651 | TGTTTGGGCT | CATTCAGTCT | CAAAAGACTT | AATCAATTGG | ${\tt ATTAATTTAG}$ |
| 2701 | AGCCTGCAAT | TTATCCATCC | AAACCATTTG | ACAAATATGG | AACATGGTCT |
| 2751 | GGTTCAGCAA | ${\tt CTATTCTCCC}$ | TGGTAACAAG | ${\tt CCCATTATTT}$ | TGTACACTGG |
| 2801 | AGTGGTAGAT | GCCAACATGA | CCCAAGTCCA | AAATTACGCC | GTCCCGGCCA |
| 2851 | ACTTATCCGA | ${\tt TCCATATCTC}$ | ${\tt CGTGAATGGA}$ | ACAAGCCCGA | TAACAACCCG |
| 2901 | TTGATCGTCC | CGGATATCAG | CATCACCAAG | ACCCAATTTC | GTGACCCGAC |
| 2951 | AACAGCTTGG | ATGGGCAAAG | ATGGTCATTG | GAGAATTGTG | ${\tt GTAGGAAGTT}$ |
| 3001 | CAAGAAACCG | TGGTGGGTTG | ${\tt GCAATATTGT}$ | ATAGAAGTAG | GAATTTCATG |
| 3051 | AAATGGATCA | AGGCTGAGCA | ${\tt TCCACTTCAT}$ | ${\tt TCATCTGCCA}$ | AAACAGGAAA |
| 3101 | TTGGGAATGC | CCAGATTTTT | ${\tt TTCCTGTTTC}$ | ${\tt CTTGCAAGGT}$ | ${\tt TCTAATGGTT}$ |
| 3151 | TAGATGCATC | GTACAACGGA | AAATATGTTA | ${\tt AGTACGTTCT}$ | CAAGAATAGC |
| 3201 | CTTCCTGTTG | CCGCGTTTGA | GTACTACACA | ATTGGTACAT | ATGATGCCAA |
| 3251 | ACAAGATAGG | TATATTCCAG | ${\tt ATAACACTTC}$ | AGTCGATGGT | ${\tt TGGAAAGGAT}$ |
| 3301 | TGAGACTTGA | CTATGGCATT | ${\tt TTCTACGCGT}$ | ${\tt CTAAGTCGTT}$ | CTACGACCCT |
| 3351 | AGTAAGGACC | GAAGAATCGT | $\tt GTGGGGTTGG$ | ${\tt TCTTATGAAT}$ | ${\tt TAGATGGTCT}$ |
| 3401 | CCCCAATAAT | GAAAACAACA | AAGGATGGGC | CTGGAATTCA | GGCTATCCCG |
| 3451 | CGTAAAGTAT | ${\tt GGCTTGATTT}$ | CAGTGGTAAA | CAATTAGTTC | AATGGCCTAT |
| 3501 | TGAAGAATTA | AAAACTCTAA | GAAAGCAAAA | ${\tt TGTCCGATTG}$ | AGCAACAAAA |
| 3551 | GGCTGGATAA | ${\tt TGGAGAAAAG}$ | ATTGAAGTTA | AAGGAATCAC | AGCGTCGCAG |
| 3601 | GTTTAGACTT | ${\tt TTTTCTAGTT}$ | ${\tt TTTAATTTGC}$ | AAGCATTTTA | AATAAAATTT |
| 3651 | TCTTCACAAG | TTAAGGCTAA | ${\tt GTTGGGACAT}$ | CTATTGAAAT | TGCCAGGCTG |
| 3701 | ATGTTGAAGT | GACATTCTCC | TTCTCTAGCT | TAGACAAGGC | AGAGCCATTT |
| 3751 | GATCCTAGTT | GGGCTGATCT | TTATGCACAA | GATGTTTGTG | CAATTAAGGG |
| 3801 | TTCAACTGTT | CCAGGTGGGC | TTGGGCCATT | TGGCCTTGCA | ACATTGGCTT |
| 3851 | CTCAAAACTT | AGAAGAATAC | ACACCTGTTT | TTTTCAGAGT | GTTCAAAGCT |
| 3901 | CAGAATTT | | | | |

Fig. 16A

19/22

Sequence of NIN88 promotor fused with NIN88 antisense

| 1 | TCGAGCCATT | CATGTTCAGC | CCATTCTGGA | AAGTTGCTAC | AACCATTCCT |
|------|------------|------------|------------|--------------------|------------|
| 51 | TCTGATACAT | TCGGTAAGGT | CATCCTTACT | CTGTTGAATC | GAGCGAGGAA |
| 101 | GTCCCTCAAT | CCCTCTCCGA | GTGATTGTTT | GATGGCAAAT | ATATCGTTCA |
| 151 | CTCTTGCCTC | CGCGTTTTTA | GCCCCAACAT | GGGCCATTAT | GAACTTGTCG |
| 201 | GCCATCTCTT | CGAATATTTC | AATGGAGCGC | GCGGGCAGCT | GTGAATACCA |
| 251 | AGTCAATGCT | CCTCCGGTAA | GGGTCTCGCC | GAACATTTTC | AACAAGATGG |
| 301 | AGGAGACTTG | TTCTTTGGAG | AGATCATTGC | CCTTTACCGC | AGTGACATAA |
| 351 | TGATTACATG | ATCTTCGGGG | TCGGTCGTAC | CATCATAAAT | TTTCAGATAA |
| 401 | GGTGGCATCT | TGAACGTCTT | GGGTATGGCA | TATGGGGCGG | CTTCATCACT |
| 451 | GTAGGGTTGC | TCGACTAACC | GACCAGCGTC | TCTTTTTGGA | AATATTTTTG |
| 501 | GGGCACCCGG | TATTTTATCG | ACTCTTTCTT | GGTGTTCTCT | CATTTGATCC |
| 551 | CGAAGCATTT | TATTTTCGTT | TTCCATTTCT | TCCATTTTCT | TCAGAATGGC |
| 601 | CGTGAGGGTG | TCATTACCTG | CATTATTAAT | ATTGTGAGTG | ATACCTGTTA |
| 651 | CTGAAGGGGG | AGGGTCGTGC | TGTTTGGTCA | TTGCTGGTGC | AATGCAAGTC |
| 701 | CTTGCATTTT | CTCTAAATAC | CTCCTGAGTG | GGTTTGTTGA | GGATGCCGGT |
| 751 | CAGCATATTT | GTCAGCCAAG | CTTCGAGTAG | CTTCTTCACC | GCTGGTGGCG |
| 801 | | | | | TGTTGCGATA |
| 851 | CTGCTGTGAG | | | | |
| 901 | TATGCCTTCG | | | | |
| 951 | TGGTAGTGAG | | | | |
| 1001 | ATGTCAGATC | TGGGTGTACA | AGGAAGTAGG | AGCTTCTCTT | CTTCTTTTTT |
| 1051 | GTGAATTGTG | | | | |
| 1101 | TATCCTCACA | | | | |
| 1151 | ATTAAATTAA | TTAATATTGT | ATGACAAAGG | ATTAAACCTA | GTTAATGATA |
| 1201 | ATAACTTCAG | ATCTATAATC | AATTAACAGC | AATCACGGTC | ATAGCAGCGT |
| 1251 | TGAGAGAAGA | TTAAATGTGA | TGTnCATTCA | ${\tt ATATTTCAAG}$ | ATCATTAATG |
| 1301 | ATAGGGGAAT | ATCAAGCAAT | AAATAACGAT | AAATGGCATT | AAAGTAAATA |
| 1351 | AGGAGAATGA | TTCACCCAAT | ATTGAATGAG | ${\tt GTGGATGATT}$ | CTTCTTTTTG |
| 1401 | ACAATGATGA | ATGATGGnCA | AATACTAGAA | TGTTGGGACC | CTTCTCGGAT |
| 1451 | CTAATGAAAA | AAGTATGGAA | TAGTAGATAA | TCGAATCTCT | TTAGAAAGGT |
| 1501 | AGTGATTGTC | TTTTATCTAG | AGAGAAAGTC | TGCTTTTCAA | AGAATATTTT |
| 1551 | TATCAGAGAA | TATTACATCC | CCCTCTCTCC | CTATnTCTTT | TTCTATTTAT |
| 1601 | ATGGGACATT | CCTCAATCAA | TCCTAAAAGT | ACATACACCA | AGAATATTCA |
| 1651 | TTATAAAATA | TTTTTGAATA | ТТСТАТТАТА | AAAACTAGCT | GTTAGCACTC |
| 1701 | GACCTCGGTC | GnTATTGACT | ACTCGGTTAC | GAGCCCTGTC | ATTTACTAAT |
| 1751 | CGACCTCGAT | TACATCACTT | TCTACGATAC | TGCTTCATGT | CAAATCTTAA |
| 1801 | TGAAAGCAGA | | | | |
| 1851 | AAAACATGGC | | | | |
| 1901 | GAATTTATTT | | | | |
| 1951 | AGTAAAGCAA | | | | |
| 2001 | TGGTGTTTTT | | | | |
| 2051 | GATCAATTAA | CAAAGGTTAT | GGTGGAGTGG | TAAGCAGAGG | CGGACCTATG |
| | | | | | |

Fig. 16B

| 2101 | TGTTATAGTA | AGGGGTCACC | CACTACTAGA | AATCCGGTAA | AGATCGATCA |
|------|--------------------|------------|--------------------|--------------------|------------|
| 2151 | AAAAACCGAC | CAACATTGGT | CGGTAATGGC | CAAAAACTGA | CCAAAACGCG |
| 2201 | ATCATTTACG | TGTGAACGGT | ATTTTTATGG | TCGGAAAGGA | ATACCGACCA |
| 2251 | AAGTTGGTCG | GAAATTACCG | ACCAACTTTG | GTCGGTCAAT | TAAATTCAAA |
| 2301 | AAAAATATTG | ТАААААААА | CCGACCAAAG | TTGATCGGTA | TTTTAATTAT |
| 2351 | GTAATAAAAA | GATTCACTAT | CTGGGAATCG | AACCGGGGTC | TGTACTATGG |
| 2401 | CAAGATACTA | TTCTACCACT | AGACCATTGG | TTCATTTTGT | TTTAAGACTG |
| 2451 | TCTTTTATTT | GATTTATACT | CTTTAATTAT | ATTTTTGCAC | GAAAATAACC |
| 2501 | GACCAAAGTT | GGTCGATTTT | ATTAAAAAGT | AAAATTACTT | ACCAAAGTTG |
| 2551 | GTCGATTTTT | TTAAATGATC | CGCCGAATTA | ACCGACCAAT | TTTGGTAGGT |
| 2601 | TTTTTTAATA | TTAATTTTTA | TTTATTTAA | TTGAAAAACT | AACCAAAGTT |
| 2651 | AGTCGGTTTC | TTGAAACATA | AATTTCGCGG | GACTCAAAAA | TAGTTTCCCG |
| 2701 | CATTTTTGCG | CCAAAGAAAA | CCGACCAAAG | TTGGTCGGTT | TCGTAAAAA |
| 2751 | TTAAAAAAA | ТААААААТАТ | AAAAATTTTA | ACCGACCAAC | TTTAGTCGGT |
| 2801 | TTTTTGGTCG | ATTTTTTGAC | CGACCAAAGT | TGGTCGGTCG | ACCTTGGTCG |
| 2851 | GTTTTTGCCG | AATTTCTAGT | AGTGACCGAA | CCCTGTAAGC | TTCGGGAGAA |
| 2901 | ATTTTGTATA | TGTATATGTG | TATATCCTTA | AAATGATTAA | TTTAAAGAAC |
| 2951 | GnnGCACCCT | GAATACTAGA | AGCCTTTAGG | GGCACTAGAT | GAGCAGAATA |
| 3001 | ACGTGTTCTC | GTCGCGTAAA | AATACTTGGA | TCCGCCTATG | ATGGTAAGTA |
| 3051 | CTTCTTCGTC | CTTAATCAGA | GGTTTCGACT | TCGAGCTCCA | GATATAAACT |
| 3101 | ATAGACTCGT | CTTTATAGCA | CCTTTTAATA | AGACTATGAC | TTCATCTGAT |
| 3151 | TTCTCTATAA | ATACTCCTCA | AGCTTTCGGT | TCTTCTCCAT | TGTTCAGTTT |
| 3201 | CTTTCTCCAC | ATCACAGAAG | TGAAAACAAA | ACAAGAAGAA | GAAGAAGAAG |
| 3251 | AAAAATAAAG | AGTTTCTGTC | AAATTAAGTC | CAATAGGGAA | AATGGAGCTG |
| 3301 | TTTGGATCCC | CGTTTTCATT | ATTGGGGAGA | CCATCTAATT | CATAAGACCA |
| 3351 | ACCCCACACG | ATTCTTCGGT | CCTTACTAGG | GTCGTAGAAC | GACTTAGACG |
| 3401 | CGTAGAAAAT | GCCATAGTCA | AGTCTCAATC | CTTTCCAACC | ATCGACTGAA |
| 3451 | ${\tt GTGTTATCTG}$ | GAATATACCT | ${\tt ATCTTGTTTG}$ | GCATCATATG | TACCAATTGT |
| 3501 | GTAGTACTCA | AACGCGGCAA | ${\tt CAGGAAGGCT}$ | ATTCTTGAGA | ACGTACTTAA |
| 3551 | CATATTTTCC | GTTGTACGAT | ${\tt GCATCTAAAC}$ | CATTAGAACC | TTGCAAGGAA |
| 3601 | ACAGGAAAAA | AATCTGGGCA | $\tt TTCCCAATTT$ | ${\tt CCTGTTTTGG}$ | CAGATGAATG |
| 3651 | AAGTGGATGC | TCAGCCTTGA | ${\tt TCCATTTCAT}$ | ${\tt GAAATTCCTA}$ | CTTCTATACA |
| 3701 | ${\tt ATATTGCCAA}$ | CCCACCACGG | ${\tt TTTCTTGAAC}$ | TTCCTACCAC | AATTCTCCAA |
| 3751 | TGACCATCTT | TGCCCATCCA | AGCTGTTGTC | ${\tt GGGTCACGAA}$ | ATTGGGTCTT |
| 3801 | ${\tt GGTGATGCTG}$ | ATATCCGGGA | CGATCAACGG | ${\tt GTTGTTATCG}$ | GGCTTGTTCC |
| 3851 | ATTCACGGAG | ATATGGATCG | GATAAGTTGG | CCGGGACGGC | GTAATTTTGG |
| 3901 | ${\tt ACTTGGGTCA}$ | TGTTGGCATC | TACCACTCCA | GTGTACAAAA | TAATGGGCTT |
| 3951 | GTTACCAGGG | AGAATAGTTG | CTGAACCAGA | CCATGTTCCA | TATTTGTCAA |
| 4001 | ATGGTTTGGA | TGGATAAATT | GCAGGCTCTA | AATTAATCCA | ATTGATTAAG |
| 4051 | TCTTTTGAGA | CTGAATGAGC | CCAAACAATG | TTGTTCATTG | TTGATCCTTT |
| 4101 | TGGATTGTAC | TGGTAGAATA | GATGATAGAC | TCGAG | |
| | | | | | |

Fig. 17A

| 1 | CATAATCAAA | TGTGTGGTCT | TATGTAGAAC | TAATATTTGG | TAATATTAGO |
|-------|---------------------|---------------------|--------------------------------------|-------------|---------------------|
| 51 | CAAGTTGTTA | TGTGACTTAT | TTTATTCAAA | AATATAATAA | GAAGTTCAAA |
| 101 | GAGAAGAGTA | CAAGTAAGTA | AGTAAGCAGA | GACGAATCCT | GGATTTAAA |
| 151 | GGTCTGGCTA | TATTAATGTT | TTTTAATTT | AAGCATTAGC | GATTCGCCTT |
| 201 | GCAAGTAATC | GATAGGACAA | AAGTTTTACC | TTACTAATTC | TATTGAGGCA |
| 251 | CCAAATCCCT | AT GAAA AAGC | ATG T AA A AT A | TGAGAAGACG | AAAGAATTAA |
| 301 | ATAGGTTATA | ATTATTGTAT | AATTTATAAC | ACACTTTATG | ATAATATTAC |
| 351 | AAATAAGAAT | ATCGAATATT | TAATTAATGA | CGAACTATAA | AAGCAAAGAA |
| 401 | GGAAGGATGA | GCTTCCAAAA | ACAATCGCAA | ATGAATAAAG | ATGCCCAAAA |
| 451 | TAGAGTAACC | TAACGAAGTC | GATACTTCCA | TTCATAATCA | AATCTGTTCA |
| 501 | AAAACACTTG | ATGGGTTATT | TTTAACTTTA | AGAGATGTAT | CATATCGTCT |
| - 551 | CTTATTATTC | CTTTAGGGCT | ATTCGCCGTA | GGAATAAAAT | TTATATGATC |
| 601 | AAATTTCACG | TTATATAAAT | A A TGTGA AGA | AAAAACTTAT | ACTTTTCAAG |
| 651 | GTAACAAGAA | ATCATGTTTT | TTTTACGCCT | TCGTGGAGAC | TACTTCCTCG |
| 701 | ТААСААААА | TTAACATTTT | AAGTGGCGAC | TCTAAAAACT | CGTGGCCAGT |
| 751 | ATATTAGTCG | CCATTAAACA | TTATTTTTAA | TCATGAGTTC | TTTTCTTTTT |
| 801 | TAATCTTTTT | TTAAGGTCAA | ATTTACCACT | TTATCTTATT. | TATTTAAATT |
| 851 | GAAAAATCCC | AAATTTTGCA | TTATTTTTTT | GAATTCCTTT | TTTTTTTACA |
| 901 | CACTCAAAAA | GTCAAAA CAT | TAAAAAAACG | AAATAGCAAA | TTAAATGGCA |
| 951 | AAAGACTTGT | TGTAACAAAA | AAAAAATAGT | AAAACAGACT | CATAAAAGGT |
| 1001 | AACAATAACC | AACAAATCAC | ACAAAATTGT | AGATAAATAT | TATGCAAACA |
| 1051 | TTAAAAATT | AATAATC CAA | TCCATTTATT | TATTTTTTTA | AAAAAAACCT |
| 1101 | AAATTAACTC | TCCATCTTTC | AATCAAAAAC | AAACTCTACC | CATTTTTTC |
| 1151 | AC TATAAAT A | CTCTTCATAA | TTTTCATTTG | TTCTTCATTC | CCATGTTTCT |
| 1201 | TTTCTCCTTA | TCCAAAAAA | AAAAAATTAA | TATT | TTAGATTAAA |
| 1251 | TATCACTATC | TGTCAAAGCC | CAATCATTAA | AATAAAATAA | AAATT ATG GA |
| 1301 | TTATTCATCT | AATAAAAGTT | CTCGTTGGGC | TTTGCCAGTT | ATCTTAGTTT |
| 1351 | GCTTTTTTGT | ATTATTAA | TCCAATAATG | TTGTTTTTGC | TTCTCATAAA |

Fig. 17B

| 1401 | GTTTTTATTC | ACTTGCAATC | TCAAAATGCC | GTAAATGTTC | ATACIGITCA |
|------|------------|------------|------------|-------------------|------------|
| L451 | TCGAACTGGT | TATCATTTTC | AGCCCGAAAA | ACATTGGATC | AATGGTATG1 |
| 1501 | TTATTCCTTT | TTTTCGTCTT | TTTTTTATAT | ATATATATAT | AATAAAACGA |
| 1551 | ACATGTTGTG | TTTAGTCTAG | ATTTAATACT | AGTGATTTTT | TTGACGCTAA |
| 1601 | CAAATAATCG | AGTACTCACC | ATTTGTCAAT | AGATACATTG | ACATGTATTA |
| 1651 | GTATGATTTT | CGTCTTTTTT | CGTTGTTTCT | AATATTATTT | AATCTTCACT |
| 1701 | AATTTTTTA | TTTTTCTTTG | AATGATGTCT | CTTGGTCAAA | ACATACAATA |
| 1751 | GATCCCAATG | GTAAGTTAAC | TATATTTTTG | TATATTTTTT | AAATTTATTI |
| 1801 | TATTCTTATT | ATATAATATA | GGGAAAAAAG | GATAAATATA | TCCCCGAACT |
| 1851 | АТТАТАААТА | GTATGCACCA | GTATCCTCTG | TTATACTTTA | GAGATATTT |
| 1901 | TGCCGTCAAA | AAACTAGAAC | ACATATATCC | TTTATTTATC | CCGATATCGA |
| 1951 | ATCGATTGTA | CCACGAGTGA | AGGGTATAGC | TCTAGTTTTG | GACGGTAGGC |
| 2001 | CACCTAAAGT | AGACGAAGA | | | |

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